

Defining and Measuring Access to High-Quality Early Care and Education (ECE): A Guidebook for Policymakers and Researchers



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About the ECE Access Guidebook

Recent federal policy changes have placed new requirements on states to demonstrate and document their efforts to improve access to high-quality early care and education (ECE), and have made clear the urgent need for a shared understanding of this concept. The November 2014 reauthorization of the Child Care Development Block Grant (CCDBG) Act strengthened federal investment in improving ECE access by promoting the implementation of policies aimed at addressing the continuity of child care subsidy receipt; improving the quality of care provided; targeting specific groups (e.g., infants and toddlers, children with special needs, homeless children) for improved ECE access; and requiring states to complete market rate surveys using traditional or alternative methods that take into account the cost of high quality ECE.¹

Additionally, the Race to the Top-Early Learning Challenge (RTT-ELC) awarded grants to states in 2011 to 2013 with a stated goal of improving young children's access to ECE. RTT-ELC prioritizes access by requiring grantee states to implement a Quality Rating and Improvement System (QRIS) in order to rate and improve ECE quality. It also requires grantees to include performance measures to assess the number of children with high needs participating in ECE with high-quality ratings. The RTT-ELC provisions emphasize a joint focus on improving quality and improving children's participation across high-quality ECE settings and sectors, including licensed child care, Early Head Start/Head Start and pre-kindergarten programs.

Federal, state, and local initiatives promoting access are supported by research demonstrating that participation in high-quality ECE can improve children's developmental outcomes and their readiness for school, particularly for children from economically disadvantaged families.^{a,2} Yet the term access has historically had a variety of meanings depending on the context in which it is used. In some cases, access to ECE is used interchangeably with usage or participation in ECE settings. Other times access can encompass concepts related to cost, available slots in ECE programs, transportation, language, or cultural competence.

^a See for example text describing President Obama's Early Learning proposals (<https://www.acf.hhs.gov/ecd/early-learning/early-learning-initiative>) and a report by the Center for Early Learning Outcomes and the National Institute for Early Education Research entitled "Access to High Quality Early Care and Education: Readiness and Opportunity Gaps in America" (http://ceelo.org/wp-content/uploads/2014/05/ceelo_policy_report_access_quality_ece.pdf).

Establishing a common understanding of ECE access, and how to measure it across different types of early learning settings, is essential for state and local policymakers responsible for improving access. A common understanding of access allows policymakers, administrators, and researchers to communicate clearly about this important concept. A common set of measurable indicators of ECE access allow for accurate longitudinal and cross-state or intrastate comparisons, as well. The ECE Access Guidebook was developed to address the need for developing a common understanding and approach to measuring access. Ultimately, this Guidebook is intended to support states' efforts to assess the reach and effectiveness of their policy initiatives aimed at expanding ECE access.

The Guidebook provides information in four sections: Clarifying and Defining Access; Describing the Indicators of Access; Measuring the Indicators of Access; and Identifying ECE Access Datasets and Sources.

Section 1: Clarifying and Defining Access to ECE

Section 1 provides an overview of current conceptualizations of access and offers recommendations for developing a more comprehensive term. We describe a multi-dimensional definition of ECE access (developed by an expert work group) that provides a foundational understanding of the concept that can be used for measurement and analytical purposes. The working definition of ECE access encompasses four dimensions and multiple indicators that serve as measurement metrics.

Section 2: Describing the Indicators of ECE Access

Section 2 provides more in-depth information about the proposed indicators of ECE access. These indicators serve as the measurable components of the four dimensions of ECE access. We define each indicator, identify potential data sources from which the indicator could be calculated, and provide sample policy-related questions that could be addressed using each indicator.

Section 3: Measuring the Indicators of ECE Access

Section 3 provides analytical guidance to help states in their efforts to measure and track indicators from each of the four dimensions of access. We present select policy-related questions that incorporate multiple access indicators and represent different goals of access-related initiatives such as improving affordability, availability, and quality; meeting children's unique needs; providing ECE to underserved groups; and increasing public awareness of ECE options.

Section 4: ECE Access Datasets and Sources

Section 4 includes a list of datasets with data elements that can be used to measure ECE access and answer analytical questions of interest. All of the datasets referenced in the Guidebook are described in this section, including any limitations of the datasets, along with other datasets that might be of interest and use to analysts tasked with measuring ECE access.

The goal of this Guidebook is to spark dialogue among policymakers, researchers and advocates about the importance of conceptualizing ECE access as a multi-dimensional concept and to propose innovative strategies for measuring and tracking progress toward improving access. The proposed dimensions and indicators are not intended to be prescriptive or to constrain the options for measuring access; they are instead intended to expand measurement options and to encourage additions and extensions to the ideas proposed here. As needed, the Guidebook will be updated to reflect ongoing discussions and recommendations.



Section 1: Clarifying and Defining Access to ECE

Developing a shared definition is an important starting point for identifying and tracking the results of new policy initiatives aimed at improving ECE access. Historically, access definitions and methods have focused on concepts related to use, availability, and affordability of ECE. While these concepts cover vital dimensions of access, we recommend clarifying and expanding the conceptualization of access.

The approach outlined in this Guidebook promotes access as a multidimensional concept and highlights the features that emerge uniquely when considered from a parent's perspective. In this section, we describe four proposed dimensions of access and the specific indicators that can be measured and tracked to capture progress in each dimension.

Process

The ECE Access project is supported by the Office of Planning, Research and Evaluation (OPRE) in the U.S. Department of Health and Human Services and managed through a contract with Child Trends. The project was developed in part to respond to new legislative and reporting requirements in the 2014 reauthorization of CCDBG, but also to spark discussion in the ECE field about how ECE access is defined and measured.

The first step in the development of the definition and dimensions of access involved a literature review of peer-reviewed journal articles and other publications. This granted a greater understanding of how ECE access has been conceptualized and the methods that have been used to measure it.

Secondly, we convened a group of experts to gain insights about the challenges states and localities face in measuring and assessing access and the types of tools that would aid them in their analytical work (a list of participants in the ECE Access Expert Panel is included at the beginning of the Guidebook). The ECE Access Expert Panel was convened in October 2014 to discuss topics such as: current definitions of ECE access; gaps in current definitions; data used by states to make determinations of ECE access; and insufficiencies in the availability of data about ECE access. Through the Expert Panel discussions, a preliminary definition of

ECE access was developed. The multidimensional nature of the definition necessitated the development of key indicators to measure each dimension.

The third step involved an iterative process to edit and refine the initial list of dimensions and indicators first developed at the Expert Panel meeting and presented in the Guidebook.

Current practices in conceptualizing ECE access

No single universal definition of ECE access was found in the extant literature. Most of the literature we reviewed focused on access to specific types of ECE settings (e.g., state pre-kindergarten programs or Head Start) or among high priority sub-groups of children (e.g., low-income children or children with special needs). Availability and utilization of ECE, quality, and cost were identified as commonly used indicators for assessing access (see Table 1 for details).

Table 1. ECE access metrics commonly identified in the literature and examples of how they were used

Common indicators in the ECE access literature	Metrics used to measure the indicator	Example
Availability and utilization of ECE	<ul style="list-style-type: none"> Number of children enrolled in ECE, by age groups Number of available slots in ECE programs Number of children birth to five in a limited geographic area 	In a 2005 study, ³ access is examined over a period of more than 30 years and conceptualized as “usage of care.” The study found that enrollment in early education has risen dramatically since 1968. For 3-year-olds, participation grew from 8 to 39 percent; for 4-year-olds, participation grew from 23 to 65 percent; and for 5-year-olds, participation grew from 77 percent to nearly universal.
Quality of ECE	<ul style="list-style-type: none"> Number of children enrolled in high-quality ECE programs Number of ECE programs at the highest levels of quality Number of high-quality open slots, by ECE program type 	A 2012 study combined the factors of cost, quality and usage to examine subsidy-eligible children’s access to high-quality ECE. ⁴ The study found that children who receive subsidies use higher-quality care compared to subsidy-eligible non-recipients who use no other publicly funded care, but lower quality care compared to subsidy-eligible non-recipients who use Head Start or public pre-kindergarten.
Cost of ECE to families	<ul style="list-style-type: none"> Number of ECE programs accepting subsidy Number of children receiving subsidy Percent of the total cost of ECE covered by subsidy 	Reducing the cost of ECE to parents is a key focal point for improving access. In a created as part of the 2014 White House Summit on Working Families, cost was integrated into a conceptualization of ECE access by proposing that two of the key components are the availability of subsidies and open slots in high-quality programs. ⁵

Source: Child Trends' literature scan

The literature review also revealed factors that could be facilitators or barriers of ECE access, including: geographical location of ECE programs, consumer information about the availability of ECE, reliable transportation, and alignment of work hours with hours of ECE program operation.^{6,7,8} In addition, families with unique needs may face challenges in accessing high-quality ECE programs. For example, families of children with a physical, emotional, or developmental disability may be limited in ECE options that offer the specialized treatment their child requires.⁹ Families experiencing homelessness may have limited ECE access because of unpredictable schedules¹⁰ and a lower likelihood of subsidy receipt when compared to parents living in poor housing conditions.¹¹ Immigrant families may have limited access to ECE due to language barriers, deportation fears, or ineligibility to apply for public assistance.^{12,13}

Though the metrics of ECE access identified in the literature capture vital pieces of information, the ECE Access Expert Panel recommended that a robust definition of ECE access requires a multidimensional approach that integrates relevant concepts and perspectives and is sensitive to the unique needs and preferences of families.

Defining access to early care and education

A number of dimensions related to ECE access were identified by the project team and reviewed by the ECE Access Expert Panel. Panel members discussed options for defining access in a more comprehensive way. The work culminated in the proposed working definition of ECE access:

Access to early care and education means that parents, with reasonable effort and affordability, can enroll their child in an arrangement that supports the child's development and meets the parents' needs.

This working definition takes the perspective of the family and their experiences finding ECE arrangements that meet their needs. A family-based perspective allows for consideration of the unique preferences, priorities, and needs of each household.

Taking a family perspective on access emphasizes that measurement of ECE access is ideal when it occurs at a local level, taking into account the local context and assessing parents' experiences in securing ECE within their community. For example, localized measurement of access accounts for the differences that urbanicity has on availability of programs and the impact of limited transportation on parents' ability to travel to programs. Also, a local approach to measurement accounts for the types of programs available (e.g., center-based, home-based, school-based, Head Start) and the slots available by age group, within a limited geographic area. While this information may be "rolled up" to provide a county- or state-level understanding of access, a local, family-oriented perspective has the potential to provide deeper insights about the realities that families face when searching for and securing care.

In addition, taking a family perspective on access implies that measurement of ECE access must account for the varying characteristics of the diverse families with young children who live in each community. Understanding the demand for ECE, for example, should include essential information about where families with young children live and what their unique needs are. Key demographic variables to consider include: child's age, home language, household income, number of children in the household, and parents' employment status, among others. These characteristics may be collected by states conducting household surveys or by federal data collection efforts (e.g., U.S. Census data). More detailed information about using demographic variables in access measurements is available in Section 2 in this Guidebook.

Dimensions and indicators for measuring ECE access

Four primary **dimensions** of **ECE access** are included in the proposed working definition: 1) requires reasonable effort, 2) is affordable, 3) supports the child's development, and 4) meets the parents' needs. The ECE Access Expert Panel supported the key principle that multiple dimensions contribute to a full understanding of ECE access, and no one dimension stands alone as more important than another.

Within each of the proposed dimensions are multiple measurable metrics referred to as **indicators**. The specific indicators used to assess each dimension will depend on the analytical goals to be achieved and the availability of data. Indicators could be selected from one or more dimensions and analyzed individually or jointly. Indeed, the indicators may be most useful when combined or compared with other indicators. Assessments of access will be more comprehensive and more relevant when the assessments include at least one indicator from each dimension.

In order to identify the most important possible indicators for each dimension, the ECE Access Expert Panel generated a list of indicators that have been historically used in analyses of ECE access. Many of these indicators aligned closely with the common metrics identified during the literature scan, although some less common but still important indicators were also considered and discussed. Three general criteria were used in narrowing down the list of indicators originally developed by the ECE Access Expert Panel into a final list of 23 primary indicators:

- *Simple*: The indicator and its purpose are understandable to an audience of state administrators, analysts, and policymakers.
- *Measurable*: The indicator is quantifiable and can be captured by one or more numeric data elements.
- *Available*: There is a data source that exists, or would be feasible to create, with elements that can be used to calculate the indicator.

A few critical indicators were included if they did not meet the agreed-upon criteria. Critical indicators were considered significant to the definition of ECE access, even if they might be difficult to collect or measure. In the sections that follow, each dimension and associated indicators of ECE access are described briefly with a research rationale for their inclusion.

Reasonable effort

Research indicates that families navigate a host of constraints and opportunities when selecting ECE.¹⁴ In addition to quality, parents cite logistical issues such as cost,^b location, and hours of operation as priorities that guide their decision-making.^{15, 16} Given the potential challenges associated with using different ECE arrangements, the ECE Access Expert Panel recommended that ECE be considered accessible if families need only make a “reasonable effort” to identify and use an ECE option that meets their needs. The **reasonable effort** dimension captures the interaction between the supply of ECE programs (including available slots), the use of ECE programs by families, and the extent to which information about ECE programs is readily available to parents. Considering the strong research basis for availability of ECE as a core component of access, the ECE Access Expert Panel considered a number of ways in which availability could be incorporated into the conceptualization of reasonable effort. Several data elements (e.g., enrollment, vacancy, and capacity) are necessary to make assessments of supply/availability at both the program-level (e.g., number of programs with open slots within a community) and child-level (e.g., number of slots available for a child of a specific age). Geographic access was also identified by the experts as a critical indicator, because programs with available slots need to be located in the communities in which families work or reside. Finally, reasonable effort is distinct from the second proposed dimension,

^b Note: Cost is not included in the indicators for the Reasonable Effort dimension as it is reflected in the second dimension, Affordability.

affordability, in that it includes the availability and accessibility of information about high-quality programs to parents so that they can make informed decisions in selecting an ECE arrangement.^c

Affordability

The out-of-pocket cost of ECE is a central constraint in families' decision-making and selection of ECE, with child care costs accounting for a significant portion of family expenditures and exceeding 20 to 30 percent for some low-income families (depending on their location and ages of children served).^{17, d} The ECE Access Expert Panel identified **affordability** as a dimension of access and recommended key indicators reflecting the cost to parents and the cost to ECE programs of providing early care and education services. The indicators include parents' out-of-pocket ECE expense, their use of public programs that subsidize child care/ECE costs (e.g., child care subsidies, Head Start, public pre-kindergarten, and scholarships/donations/grants) and the portion of their income devoted to paying for ECE. The cost to programs of providing ECE can be captured by indicators such as the advertised price of an ECE program and fundraising to cover per child costs.^e The total cost to provide ECE to children typically differs from the advertised price because programs use other sources of revenue (including donations and in-kind services) to cover their costs.

Supports the child's development

Stable participation in high-quality ECE can promote positive child development and support children's unique, individual needs.¹⁸ The ECE Access Expert Panel recommended that the degree to which a program **supports the child's development** be included as a dimension of access and prioritized six indicators at the program-level. These indicators describe a set of discrete, measurable practices that ECE program staff engage in, or program-level policies intended to promote children's positive development.

First, an ECE program's designation of quality (e.g., a QRIS rating) is included as a broad indicator to acknowledge the documented association between high-quality ECE and children's development.^{19,20,21} Second, coordination of services is included as an indicator to address the importance of practices that involve collaborating within and across ECE settings and other sectors (such as health), to improve children's transitions between ECE settings, connect children with early intervention services at a young age, and facilitate positive physical, cognitive, and socio-emotional outcomes through linkages with resources and family supports.^{22,23,24} Third, practices that support children's stability in ECE arrangements is included as an indicator to acknowledge the importance of continuity of care for children's social-emotional well-being and their ability to form strong relationships with their caregivers.²⁵ Finally, program practices that meet children's unique needs including provision of supports for children with developmental or physical disabilities, children who are homeless, and children who speak a language other than English were recommended as indicators by the Access Expert Panel to acknowledge the importance of high quality ECE for children who may be particularly vulnerable.²⁶

For example, parents of children with developmental and physical disabilities report challenges finding high quality care that meets their needs and may require settings with special equipment and staff with specialized training.²⁷ Homeless children may benefit from supports such as streamlined enrollment without standard documents that facilitate their participation in ECE.^{28, 29} And children whose native language is Spanish may experience enhanced social development when participating in ECE programs with staff who speak Spanish.³⁰

^c Child care subsidy policies and practices such as eligibility thresholds and redetermination processes might also be considered as indicators of Reasonable Effort because they facilitate or impede the use of child care subsidies.

^d The Child Care and Development Fund final rule 45 CFR §98.45(K) requires states/territories to provide affordable family co-payments that are not a barrier to families receiving CCDF assistance. Co-payments should be based on income and the size of the family and not be based on the cost of care or amount of subsidy payment under this part.

^e OPRE is supporting a project called Assessing the Implementation and Cost of High Quality: <https://www.acf.hhs.gov/opre/research/project/assessing-the-implementation-and-cost-of-high-quality-early-care-and-education-project-ece-ichq>. This project will provide important insights into measuring the costs of producing high-quality ECE.

Meets the parents' needs

In selecting an ECE arrangement, parents consider not only the needs of their child, but also the needs of their family as a whole. To assess the extent to which parents have access to ECE options that align with their needs, the ECE Access Expert Panel proposed the dimension **“meets the parents’ needs”** which encompasses indicators including: program type, the availability of transportation, and program hours of operation. The dimension is differentiated from the reasonable effort dimension by its focus on the ECE features that align with a family’s needs rather than the availability of an ECE arrangement.

Characteristics of children, families, and communities

Access is a concept that has been identified as especially important for at-risk children for whom high-quality ECE can have the greatest impact on their school readiness and long-term outcomes. As such, states often develop initiatives to improve access that are targeted at specific at-risk groups of children. Analytical approaches to tracking or measuring the impact of these initiatives must be specific to the targeted groups as well.

While the characteristics of these groups are not vital to a conceptualization of access itself, measuring access without acknowledging the characteristics of children, families and communities will result in findings that are incomplete and potentially misleading. Important characteristics to include in the measurement of ECE access include typical demographic characteristics such as race/ethnicity, age, language spoken in the home, as well as descriptors of experiences that put children at risk for negative outcomes like homelessness or involvement in the child welfare system. These characteristics may be measured at the community level as a way to assess overall need and to identify geographic areas with vulnerable families that may need improved access to high-quality ECE.



Section 2: Describing the Indicators of ECE Access

The indicators of ECE access represent four dimensions recommended by the ECE Access Expert Panel. The four dimensions include: reasonable effort, affordability, supports the child's development, and meets the parents' needs. In this section, the major indicators are listed for each dimension along with the unit of analysis at which the indicator can be measured, a working definition of the indicator, a list of data sources with data elements that can be used to assess the indicator, and select policy-related questions that incorporate the indicator. Table 2 provides an overview of the terms used in the tables that describe the access indicators. Tables 3, 4, 5 and 6 describe the indicators (one table for each dimension).

Operationalizing and compiling the proposed indicators to create a multi-dimensional picture of ECE access is a complex task that may be done at multiple levels (e.g., county, city, state, and national) and for important population subgroups with distinct characteristics (e.g., family income, child race/ethnicity, and child's home language). Because these characteristics are a critical component of access assessments, Table 7 includes some of these key characteristics that can be used to enhance an understanding of access.

Table 2. A description of the table fields included to describe the access indicators for each dimension.

Fields	Description
Indicator (unit of analysis)	A component of the dimension of ECE access that can be measured and the recommended level at which an analysis of the indicator is completed.
Definition	An explanation of the indicator within the context of ECE access. The definition describes how the indicator functions as a metric for measuring access.
Data sources	A list of data sources that include data elements or other information that can be used to calculate the indicator.
Select policy-related questions	Examples of the types of policy-related questions that could be answered using the listed indicator and data sources. Note that these questions usually include more than one indicator of ECE access because most questions related to access will incorporate multiple indicators. In the <i>Characteristics of Children, Families, and Communities</i> table, the suggested indicators and their corresponding questions are primarily useful as variables to segment overall analyses of ECE access into more targeted sub-group analyses. These indicators should be used in combination with the other access indicators. Analytical guidance for bolded questions is provided in Section 3.

Table 3. Indicators to measure the access dimension of reasonable effort

Reasonable effort			
Indicator (unit of analysis)	Definition	Data sources	Select policy-related questions
Supply of ECE programs (program)	The number of ECE programs and slots currently available in the market. Any ECE program that provides care that is available to the public or in the marketplace is considered a publically available program. Programs to be counted in supply calculations may include licensed center-based care, licensed family child care, Head Start/Early Head Start programs, state pre-K programs, school-based ECE programs, and other license-exempt programs tracked by the state. Supply calculations typically do not include unpaid, unregulated care provided by relatives, babysitters, or nannies.	<ul style="list-style-type: none"> State child care licensing data Child care resource and referral data Head Start Program Information Report data Pre-K program data 	<ul style="list-style-type: none"> How many ECE programs operate in each county in the state, by program type (e.g., licensed family child care programs, licensed center-based programs, school-based programs, Head Start programs)? How many ECE programs entered and exited the market in the last year?
Desired capacity (program)	The ideal or desired number of slots that ECE programs would like to fill.	<ul style="list-style-type: none"> Child care resource and referral data 	<ul style="list-style-type: none"> What is the desired capacity of ECE programs by age group and program type?
Licensed capacity (program)	The total number of slots that ECE programs are licensed to fill.	<ul style="list-style-type: none"> State child care licensing data Child care resource and referral data 	<ul style="list-style-type: none"> What is the licensed capacity of center-based programs by age group across the state?

Table 3 cont. Indicators to measure the access dimension of reasonable effort

Reasonable effort			
Indicator (unit of analysis)	Definition	Data sources	Select policy-related questions
Estimated vacancy (program)	The estimated total number of open slots by child age in ECE programs or the estimated number of programs with open slots.	<ul style="list-style-type: none"> • State child care licensing data • Child care resource and referral data • Survey of early care and education programs • QRIS data 	<ul style="list-style-type: none"> • What is the number of programs and open slots among programs at each level of the QRIS?
Geographical location (program)	The address or GIS coordinates of ECE programs with available slots, by child age.	<ul style="list-style-type: none"> • State child care licensing data • Child care resource and referral data • Market rate survey data • QRIS data • U.S. Census • Website analytics from the state ECE program/QRIS search tool 	<ul style="list-style-type: none"> • Which counties or cities in the state have slots available in at least 50 percent of programs with the highest quality rating? • What percentage of programs with available slots is rated at each level of the QRIS, by county?
Availability of information about ECE programs (program)	The extent to which information about high-quality child care is available to parents. Possible metrics include: number of QRIS website hits over time, number of unique website visitors each month, number of parents provided child care options by resource and referral staff, or number of parents who have received marketing materials about high-quality child care options.	<ul style="list-style-type: none"> • State child care licensing data • QRIS data • Survey of households with young children • Website analytics from the state ECE program/QRIS search tool 	<ul style="list-style-type: none"> • What information about ECE programs are website visitors accessing when they use the state ECE program/QRIS search tool? • What information are parents using to find high-quality ECE programs providing care during non-standard hours (e.g. nights and weekends)?

Table 3 cont. Indicators to measure the access dimension of reasonable effort

Reasonable effort			
Indicator (unit of analysis)	Definition	Data sources	Select policy-related questions
Utilization of ECE programs (child)	The total number of children in ECE programs (the realized effort of parents to secure ECE).	<ul style="list-style-type: none"> • State child care licensing data • Head Start Program Information Report • Pre-K program data • Survey of household with young children 	<ul style="list-style-type: none"> • What is demand for high-quality ECE in a geographic area? • What is the gap between the availability and demand for high-quality ECE in a geographic area? • What percent of homeless children are participating in Head Start?

Table 4. Indicators to measure affordability

Affordability			
Indicator (unit of analysis)	Definition	Data sources	Select policy-related questions
Parents' financial contribution (family/ household)	The cost to the parent to pay for ECE services for their child, including program tuition, out of pocket co-payments, program/activity fees, and subsidy differential (i.e., the difference between the subsidy payment rate and the price to parents, minus the copayment).	<ul style="list-style-type: none"> • ACF-801 • State child care subsidy administrative data • Child care resource and referral data • Market rate survey data • Survey of households with young children • National Survey of Early Care and Education 	<ul style="list-style-type: none"> • What was the average and median parent co-payment in the state during the month of January? • What was the average subsidy differential paid by parents over a 3-month period?

Table 4 cont. Indicators to measure affordability

Affordability			
Indicator (unit of analysis)	Definition	Data sources	Select policy-related questions
Portion of parents' income to pay for ECE (family/household)	The percent of parents' income used to pay for an ECE program (or summed across multiple ECE programs).	<ul style="list-style-type: none"> Market rate survey data Child care resource and referral data Survey of households with young children 	<ul style="list-style-type: none"> What share of household income is used for ECE, by family income, program type and level of quality in the QRIS?
Subsidy or scholarship contribution (child)	The payment per child that is covered by a Child Care and Development Fund subsidy, received as a scholarship to attend a high-quality ECE program or paid to Pre-K providers. ⁶	<ul style="list-style-type: none"> ACF-801 State child care subsidy administrative data QRIS data State pre-K program data Survey of early care and education programs National Survey of Early Care and Education 	<ul style="list-style-type: none"> What was the total amount of subsidy paid to ECE providers in the state in 2015, by QRIS rating level and program type? How many children were served What was the state contribution to pre-K spending on a per-child basis in 2015? What percent of eligible ECE programs are serving at least one subsidy-receiving child?
Program fundraising (program)	Additional funds raised by the program to pay for ECE services not covered by parents or subsidy, per child, to include donations, grants, or other fundraising.	<ul style="list-style-type: none"> Survey of early care and education programs National Survey of Early Care and Education 	<ul style="list-style-type: none"> How much do programs raise on average to supplement the total cost of providing ECE, at each level of quality?

⁶ Note that data on the payment per child in Head Start are not available in the Head Start Program Information Report.

Table 4 cont. Indicators to measure affordability

Affordability			
Indicator (unit of analysis)	Definition	Data sources	Select policy-related questions
Advertised price (program)	The weekly price of full-time ECE advertised by an ECE program or available publically.	<ul style="list-style-type: none"> Child care resource and referral data Market rate survey data Survey of early care and education programs National Survey of Early Care and Education 	<ul style="list-style-type: none"> What is the median advertised price of ECE programs within a geographic area? What is the average advertised price of ECE programs within a geographic area, by program type and age group served? What is the median advertised price of ECE by program type and by QRIS quality level?
Cost to the program to provide ECE (program)	The full cost to the ECE program to provide ECE for one week, full-time, including all expenditures and accounting for multiple revenue sources.	<ul style="list-style-type: none"> Survey of early care and education programs 	<ul style="list-style-type: none"> What is the total cost to provide high-quality ECE, by program type and geographic area?

Table 5. Indicators to measure “supports the child’s development.”

Supports the child’s development			
Indicator (unit of analysis)	Definition	Data sources	Example questions
Designation of quality (program; child)	The child is enrolled in an ECE program that is high-quality; as defined by the state/locality. Quality could be defined as: QRIS level, scores on an observational assessment of quality, Head Start/Early Head Start designation, accreditation status, or school based pre-K status.	<ul style="list-style-type: none"> • ECLS-B, ECLS-K • NHES • ACF- 801 • Head Start Program Information Report • QRIS data • National Survey of Early Care and Education 	<ul style="list-style-type: none"> • How many children are participating in high-quality ECE programs? • How many children in various age groups (i.e., infant/toddler, preschool, school-age) are in ECE programs of the highest quality? • What is the availability of ECE programs in a geographic area? What is the quality of the ECE programs?
Language of instruction (program; child)	The program employs staff to provide instruction in children’s home language.	<ul style="list-style-type: none"> • State child care licensing data • Child care resource and referral data • Workforce registry • Head Start Program Information Report • National Survey of Early Care and Education 	<ul style="list-style-type: none"> • How many practitioners speak languages other than English and are employed in a specific geographic area? • What is the number of programs that offer child care services in a language other than English, by quality level in a geographic area?

Table 5 cont. Indicators to measure “supports the child’s development.”

Supports the child’s development			
Indicator (unit of analysis)	Definition	Data sources	Example questions
Specialized services for children with disabilities (program; child)	The program provides targeted or additional IDEA services to children with developmental or physical disabilities.	<ul style="list-style-type: none"> Head Start Program Information Report State pre-K program data Data reported to the federal Office of Special Education Programs Survey of early care and education programs 	<ul style="list-style-type: none"> How many programs within a geographic area provide special education services to children with IFSPs/IEPs, by quality level? What percent of preschool-age children with IEPs are participating in high-quality programs?
Supportive services provided for vulnerable children (program; child)	The program provides supportive services to vulnerable children such as those in the child welfare system or children who are homeless.	<ul style="list-style-type: none"> State child care administrative data Survey of early care and education programs State pre-K program data 	<ul style="list-style-type: none"> What is the number of programs serving vulnerable children, by geographic area?
Coordination of services (program)	The program has an established process to coordinate with services across ECE and other sectors and makes referrals using this process.	<ul style="list-style-type: none"> State pre-K program data Administrative data about homelessness Administrative data about child welfare involvement National Survey of Early Care and Education 	<ul style="list-style-type: none"> What percent of ECE programs provide services to families to help with children’s development or their parenting?

Table 5 cont. Indicators to measure “supports the child’s development.”

Supports the child’s development			
Indicator (unit of analysis)	Definition	Data sources	Example questions
Stability of ECE (family/ household)	A child should receive ECE in the fewest settings possible to meet their needs. For example, wraparound care and services may increase the stability of a family’s use of an arrangement.	<ul style="list-style-type: none"> State pre-K program data Survey of early care and education programs Survey of households with young children National Survey of Early Care and Education 	<ul style="list-style-type: none"> How many arrangements do children use over the course of a day/ week/month?

Table 6. Indicators to measure “meets the parents’ needs”

Meets the parents’ needs			
Indicator (unit of analysis)	Definition	Data sources	Example questions
Preferred program type (program)	The type of ECE program providing services (state Pre-K program, Head Start/Early Head Start program, licensed center-based care, licensed family child or home-based care) preferred by parents.	<ul style="list-style-type: none"> Survey of household with young children National Survey of Early Care and Education SIPP 	<ul style="list-style-type: none"> What are parents’ preferences for different types of care? How do preferences differ by family characteristics?
Age groups served by ECE program (program)	The age of the children the ECE program serves: infants, toddlers, preschoolers, and school-age children.	<ul style="list-style-type: none"> State child care licensing data Child care resource and referral data National Survey of Early Care and Education 	<ul style="list-style-type: none"> How many high-quality programs are serving infants and toddlers, in each county of the state?
Hours of operation (program)	The ECE program’s days and hours of operation and whether hours cover non-standard work hours or unpredictable work schedules.	<ul style="list-style-type: none"> State child care licensing data Child care resource and referral data National Survey of Early Care and Education 	<ul style="list-style-type: none"> What are the typical hours of operation for ECE programs by program type? What percentage of ECE programs offer care during non-standard hours?

Table 6 cont. Indicators to measure “meets the parents’ needs”

Meets the parents’ needs			
Indicator (unit of analysis)	Definition	Data sources	Example questions
Transportation (program)	The ECE program offers transportation options such as bussing for families in need.	<ul style="list-style-type: none"> State pre-K program data Head Start Program Information Report Survey of early care and education programs 	<ul style="list-style-type: none"> How many Head Start programs provide transportation to and from the site location?

Table 7. Indicators to measure characteristics of children, families and communities that can be used in analyses of ECE access

Characteristics of children, families, communities			
Indicator (unit of analysis)	Definition	Data sources	Example questions
Urbanicity (community)	An indication of population density and development; includes designations of areas as rural, suburban, or urban.	<ul style="list-style-type: none"> ACF 801 American Community Survey Current Population Survey U.S. Census 	<ul style="list-style-type: none"> What is the availability of high-quality programs in rural, suburban, and urban areas of the state?
Age (child; community)	The age of the children living in a household. At the community level, the number of children, specifically young children ages birth through age 5, living in a specified geographic area.	<ul style="list-style-type: none"> CPS State child care subsidy administrative data and/or ACF 801 NSECE Head Start PIR Survey of household with young children SIPP U.S. Census 	<ul style="list-style-type: none"> How many households in a county or city include children ages birth through five?

Table 7 cont. Indicators to measure characteristics of children, families and communities that can be used in analyses of ECE access

Characteristics of children, families, communities			
Indicator (unit of analysis)	Definition	Data sources	Example questions
Race/ethnicity (family/ household; child; community)	The categories used to designate the race and ethnic identity of children and families. At the community level, the number of families in a racial and/or ethnic sub-group, living in a specified geographic area.	<ul style="list-style-type: none"> • ACS • State child care subsidy administrative data and/or ACF 801 • CPS • NSECE • Head Start PIR • Survey of household with young children • SIPP • U.S. Census 	<ul style="list-style-type: none"> • What is the percentage of children ages birth through age 5 that are identified in different race/ ethnicity categories, by geographic region?
Household income (family/ household; community)	The total income for all people in a household; includes earned income and cash transfers. At the community level, the range of household incomes within a specified geographic areas.	<ul style="list-style-type: none"> • ACF-801 • ACS • CPS • NSECE 	<ul style="list-style-type: none"> • What is the percentage of families with children age 5 or under with household incomes at or below 185 percent of the state median income, by county?
Languages spoken in home (family/ household; community)	The primary language spoken in a household. At the community level, the number of households speaking each primary language.	<ul style="list-style-type: none"> • ACS • Head Start Program Information Report • ACF-801 	<ul style="list-style-type: none"> • What is the percentage of households with children age 5 and under that speak a home language other than English, by county?
Homelessness (child)	Whether or not a child has a primary and permanent place of residence. At the community level, the incidence of housing instability among families with young children ages birth through 5.	<ul style="list-style-type: none"> • Homeless Management Information Systems (HMIS) • ACF-801 	<ul style="list-style-type: none"> • What is the incidence of homelessness of young children, by county?

Table 7 cont. Indicators to measure characteristics of children, families and communities that can be used in analyses of ECE access

Characteristics of children, families, communities			
Indicator (unit of analysis)	Definition	Data sources	Example questions
Child welfare involvement (child)	Whether or not a child is currently involved in the child welfare system, by residing in a foster home or other institution separate from family care.	• Head Start Program Information Report	• What is the incidence of child welfare involvement of young children, by county?
Parents' employment status (family/household)	Whether the parents are employed full- or part-time, unemployed, or in schooling or training.	• ACS • CPS • ACF-801	• What percentage of families in a geographic region have one parent (in single-parent households) or two parents working full-time?
Household structure (family/household)	The composition of households with young children including: the number of household members, their ages, and how they are related to one another.	• CPS • U.S. Census • ACF-801	• How many household are headed by a single parent, by county?



Section 3: Measuring the Indicators of ECE Access

One advantage of a multidimensional definition of access is the role it can play in opening up multiple opportunities for different analyses to assess access. This section of the Guidebook provides analytical guidance for a select number of the policy-related questions described in the indicator tables in Section 2. Questions were selected for inclusion in this section to demonstrate a range of approaches including analyses that inform a basic, foundational understanding of ECE access such as those that address supply and demand of ECE, and deeper analyses that address pressing concerns in the field such as disparities in access to ECE among children in different geographic areas, use of information by parents and availability of ECE for priority groups such as infants and toddlers or children who are homeless.

We have included basic analytic questions and more in-depth questions in the Guidebook in order to demonstrate options that may not have been considered or alternatives to analyses that have been conducted in the past by states or organizations. It is not our goal to be prescriptive. In addition, the in-depth analyses presented include options for conducting sub-analyses for many of the specific populations identified in the CCDBG reauthorization of 2014. The sub-analyses can help with targeted decision-making about the priority groups emphasized in the legislation.

The analytic ideas presented in this section of the Guidebook are grounded in the knowledge that the demographic and social context of states and localities are unique. To ensure that the context is addressed adequately in access analyses, it will be beneficial to engage in a planning process that acknowledges the conditions of ECE programs and families in a state or locality, sets priorities for questions that can be answered with available data and outlines additional data needed for further analyses. This planning process can also outline strategies for handling the complexities inherent in conducting access analyses. For example, many of the analyses involve merging of more than one dataset which requires technical knowledge and statistical analysis software. It also may be difficult to locate all of the data needed to answer all of these questions. Therefore, approaches may need to be modified to account for this and other

data limitations. Approaches may also vary for different geographic regions. A detailed analysis plan can account for these and other issues in data analysis.

Approach

For each policy-related question outlined in this section, the following information is included: a suggested dataset or datasets (**bolded**, when first introduced in each question) with the data elements needed to answer the question; indicators (underlined, when first introduced in each question) of ECE access addressed by the question; metrics for operationalizing those indicators; and a description of the process for deriving an answer to the question. Some examples employ the use of a hypothetical county (called County XYZ) and state (called State ABC) to illustrate the steps for answering each question. Call-out boxes provide examples of calculations and graphics to further explain and illustrate how calculations might look in practice.

Each of the questions in the In-Depth Analyses section is paired with a specific population highlighted in one or more provision of the CCDBG Act, which is listed next to the question. The populations addressed are: infants/toddlers, non-traditional hour ECE, high-poverty communities, program supply in rural areas, children receiving subsidy, and children who are homeless or involved in the child welfare system. The way in which priority groups are included in the analyses varies between the questions: the priority group may be addressed in the main analysis or described as a separate analysis at the end.

Potential issues

The questions outlined in this section represent just a few of the possible ways in which multiple indicators can be combined to answer access-related questions. Variations on these questions, or development of new questions, will depend on the context of the state and locality, including the population of families and the information that is available about them and their ECE experiences. For example, a state with a significant tribal population may need to incorporate analyses to understand the unique access issues for American Indian families. What ECE programs are available in tribal communities? What is the quality of available programs? Addressing these questions requires the availability of data on ECE program quality and the capacity to merge data across the various datasets that house information about families with young children. Data about geography is of particular importance to community-level assessments of access, yet datasets don't always have place-based information at sufficiently fine-grained levels. This is often true of federal datasets which at the lowest census tract level don't always map onto the neighborhoods or communities that would be the ideal unit of analysis.

Foundational analyses to establish supply and demand

1. What is the availability of ECE in a geographic area?

Data about the number of ECE programs, the number of slots in those programs, and programs' geographic locations are typically available through a state's **child care resource and referral (CCR&R)** or **licensing dataset**. Both of these datasets have limitations. For example, they may not include the full universe of programs in the state (e.g., Head Start programs or legally license-exempt programs may be excluded from a licensing dataset). Yet, with the range of information available in these datasets, the benefits often outweigh the limitations.⁹ The following example uses CCR&R data that includes data about multiple program types (e.g., family child care programs, child care centers, Head Start programs) combined with other data sources to obtain a full picture of the ECE supply.

⁹ Under the CCDF final rule 45 CFR §98.45(d)(1), states/territories are required to ensure that the market rate survey or alternative methodology used to inform subsidy payment rates reflects variations by geographic location, category of provider, and age of child.

Step 1: Determine the universe of ECE programs

The first indicator of access that is needed to answer this sub-question is supply, defined as the total number of ECE programs. The total number of programs in the state or locality can be identified using a CCR&R dataset. In addition, data from the state pre-K program and Head Start may be needed to produce an accurate number.^h The total number of ECE programs may vary based on factors like the types of programs included in the analysis (e.g., center-based, home-based, school-based, Head Start; counts will be smaller if only a sub-set of programs is selected for the analysis) and the way in which the data about programs are reported (e.g., at the physical site level or at the organization level; site-level counts will result in more programs than organization-level counts).

Step 2: Select for the geographic location of interest

The second indicator needed is geographic location. Geographic location is the physical location or site of the ECE program. The specific metric used to determine geographic location depends on the type of analysis being performed. States or even state regions typically do not work effectively as geographic units of reference in measuring access because parents cannot realistically take advantage of ECE programs that are outside of driving (or public transportation) distance from their home or work locations.

Measuring ECE access may be more useful at the community-level because parents can only enroll their children in ECE programs that are located at reasonable distance from their home or workplace. Therefore, the geographic area of interest is best set at the neighborhood, city or county level. Options for defining these areas include zip codes, census tracts and/or school district boundaries. Even with a smaller unit of analysis, it is important to take into account how ECE programs are located within the area. For example, if the analysis focuses on a city as the geographic unit of analysis, it will be important to understand whether and how ECE programs are clustered within particular neighborhoods.

Once the geographic location has been determined, the data set can be filtered for the geographic location of interest and the total number of ECE programs in that area can be identified. A resource and referral dataset will likely have the option to select regions, counties, cities or zip codes, but not neighborhoods.

Step 3: Calculate the desired capacity for the ECE programs in geographic area of interest

The number of programs in a geographic area can be understood in a more meaningful way by also identifying the total number of slots (i.e., number of children that can be served) within those programs. The total number of slots within programs is based on programs' desired capacity. Desired capacity is the ideal number of slots as determined by the program rather than the maximum number of allowable slots as determined by licensing. CCR&R data sets typically report on both desired capacity and licensed capacity. Using desired capacity is preferable to licensed capacity because it is a better reflection of the enrollment ceiling ECE programs are implementing. Licensed capacity can be used when data about desired capacity are unavailable. The metrics used to assess availability are the total number of ECE programs and total number of desired slots in ECE programs. The final step in this analysis is to calculate the number of desired capacity slots, within the specified geographic area of interest, to obtain the total number of slots in the geographic area.

2. What is the demand for high-quality ECE in a geographic area?

A multi-dimensional perspective on access requires knowing about the available ECE programs as well as

^h Under the CCDF final rule 45 CFR §98.45(d)(2), states/territories are required to track through the market rate survey or alternative methodology, or through a separate source, information on the extent to which child care providers are participating in the CCDF subsidy program and any barriers to participation.

the population of families with young children that could be served in ECE programs. Analyzing data about families and programs can promote an understanding of whether and how the number of slots available aligns with the need. Determining the demand or need for ECE requires use of a dataset like the **American Community Survey (ACS)** to estimate the number of young children in the geographic area of interest. Using ACS data for this purpose will require a skilled data analyst who is knowledgeable about the dataset. For states or organizations without such a person or with an interest in simplifying the analysis so that it can be completed by someone without specialized knowledge, the U.S. Census releases summary data from the ACS in table formats. This summary data can provide a good alternative to raw data for states or organizations that want to do these calculations repeatedly for internal programmatic rather than external reporting purposes.

Step 1: Limit the dataset to the geographic area of interest

First, select an indicator related to the geographic location of interest. This metric could be a neighborhood, city, county, set of counties, or state. Typically, a unit of analysis smaller than the state will provide a more refined sense of need and how it varies across the geographic regions in the state. Select only those households in the geographic location prioritized for analysis.

Step 2: Limit the data to households with young children

The next indicator needed to answer this question is child age. To complete this analysis, limit the ACS data to just include households with young children. The definition of “young children” will depend on the analytical needs and state context. In Step 4, a process is described for determining age groups for young children that start at 6 weeks and ends at 5.5 years.

Step 3: Estimate the number of working families with young children in the geographic area of interest

The next step is to determine a more refined estimate of demand for ECE using employment data. Data from the ACS provides the information necessary to determine the percentage of households with parents of young children, both single and partnered, who are working, looking for work or in school. Dividing these families by the total number of families in the geographic area of interest will provide an estimate of the percentage of families requiring ECE. Note that this estimate will include parents with nontraditional work hours that intentionally divide child care responsibilities among the parents and may not have immediate ECE needs.

Multiplying this percentage by the number of young children living in the geographic area provides the demand for ECE among working families. It is important to note that this is an estimate; not all families will need or prefer formal ECE, and families with adults who are not working may prefer to use ECE.

An option to consider in this step is to identify the sub-group of employed families who have incomes below a particular threshold (such as 185 percent of poverty or state median income).

Step 4: Sum the number of young children by age group

The final step is to sum the number of young children who need ECE by age group. One useful metric is to split the total number of children into the age groups that are typically used in child care programs and monitored by licensing (e.g., infants, toddlers, preschoolers, and school-age). The cut-offs for these age groups will vary by state and should be selected to best fit the needs of the state or organization conducting the analysis. Infancy typically starts at birth and transitions to toddler at 15 to 16 months. Toddlers transition to preschool age between 2.5 and 3.5 years (or 3 years as a mid-point). Preschool age typically starts at age 3 and ends between 5 and 6 years. Five and a half years is one appropriate point at which to limit inclusion of households with young children, although not for every state or locality. Once

age group categories have been created, sum the number of young children. This will provide the number of young children, by age group, in the geographic area of interest, who need ECE.

In-depth analyses to assess access

3. What is the gap between the availability and demand for high-quality ECE in a geographic area?

Priority group: Infants and toddlers

Data about the quality of ECE programs can come from a variety of sources, and the most appropriate data source to use will vary based on states' processes for rating programs. A common state-level data source with information about ECE program quality is a **Quality Rating and Improvement System (QRIS) dataset**. QRIS data provide a succinct assessment of program quality through use of stars or other designation. While useful for comparing quality within a state or locality, it is not possible to make comparisons across states since QRIS standards vary significantly. A second limitation of QRIS data is that quality ratings are available for only a portion of the ECE programs in the state or locality, especially in states with voluntary rather than mandatory participation of ECE providers. Participation rates vary widely across states; within states, participation rates vary by program type. The analysis presented here relies on QRIS rating information as the designation of quality and assumes that the system is covering enough programs to be useful for measurement purposes. States with low QRIS participation or no QRIS will need to identify an alternate indicator of quality. Data on quality will be combined with data from a **child care resource and referral dataset** which provides information about desired capacity for certain ages of children.ⁱ

Step 1: Limit the dataset to the geographic area of interest

First, select an indicator related to a geographic location of interest. This metric could be a neighborhood, census tract, zip code, city, county, or set of counties. Typically, a unit of analysis smaller than the state will provide a more refined sense of the supply-demand gap for infants and toddlers and how it varies across the state.

Step 2: Determine which ECE programs are high-quality

Begin with the process outlined in Step 1 of Question 1 to determine the universe of ECE programs. Once the universe of programs has been identified, the data need to be merged with data about program quality available in the QRIS dataset. QRIS data can typically be merged with resource and referral data using license number or another unique identifier. Merging is necessary to perform the analysis in this step. The designation of quality indicators will be operationalized differently depending on the structure of the QRIS. For example, the QRIS ratings that designate "high-quality" will vary, with some analyses prioritizing only the top two levels and others including all participants in the QRIS regardless of quality level. States or localities with low QRIS participation might need to identify an alternative metric, like accreditation status, Head Start status, or state pre-K program status.

Once the quality metric has been identified, it can be used to identify the total number of ECE programs meeting the high-quality standard.

Using the merged QRIS data, filter the results to include only programs meeting the high-quality designation.

Step 3: Determine which high-quality ECE programs serve the age group of interest

ⁱ Under the CCDF final rule 45 CFR §98.45(b) State/Territories are required to provide a summary of how the lead agency took the cost of higher-quality child care into account, including how rates for higher quality relate to the estimated cost of care at each level of quality.

Commonly, an age group indicator in the datasets indicates programs' desired capacity for infants, toddlers, preschoolers, and school-age children. The specific cut point for each of these age groups will vary between states' datasets and even between programs. For example, one program might use 2.5 years as the cut-off between toddlers and preschoolers while another program uses 3 years. Differences at the specific age cut-off may not be detectable in resource and referral datasets because desired capacity is reported by the age-group text categories, not by numerical age in years. In the absence of an indicator that reports desired capacity by age in years, age group categories serve as an appropriate metric to answer this question.

Using the results from Step 1, filter the high-quality ECE programs in the area of interest, by those programs indicating they have desired capacity for the age group of interest. This example prioritizes infants and toddlers, but other analyses could prioritize children in different age groups.

Step 4: Determine the number of high-quality infant/toddler slots

Using the desired capacity indicator in the child care resource and referral dataset, calculate the number of desired slots for infant and toddler-aged children in the geographic area to provide the total number of high-quality desired capacity slots.

Step 5: Subtract the demand for ECE from the number of high-quality ECE slots

To calculate how the availability is meeting the demand for high-quality ECE, take the number of high-quality infant/toddler slots and subtract the demand for ECE as described in Question 2. A negative number indicates a deficit of high-quality slots, while a positive number indicates a surplus. This analysis can be completed on a regular (i.e., yearly, biennially, or whenever new data are collected) basis to track any improvements in state's efforts to expand access to high-quality ECE for a particular age group.

Understanding the results and their implications

Findings from a supply and demand analysis may indicate: 1) the need for ECE exceeds the high-quality desired capacity, 2) high-quality desired capacity exceeds the need for ECE, or 3) high-quality desired capacity and the need for ECE are roughly equal. The interpretation of each outcome depends upon the context and availability of other data to create a more complete picture. Considerations for each outcome are included here:

Need for ECE exceeds the high-quality desired capacity. If the results indicate a shortage of high-quality slots, additional data analyses may be necessary to determine implications of the findings. First, it is important to know the supply of infant/toddler slots in the area that are not rated as high-quality (which may include unrated programs). Efforts can be directed at programs to encourage enrollment in the QRIS and participation in coaching or other technical assistance to support quality improvements. If additional analyses reveal a lack of infant and toddler slots of any quality, steps could be considered to build the supply of infant and toddler slots. Supply-building activities could include incentives to existing programs to add infant and toddler slots. These incentives could include grants to programs serving higher percentages of infants and toddlers or technical assistance related to improving infant and toddler care. New ECE programs with a focus on infant and toddler care might be incentivized to open in the area by offering grants and capital assistance for program start-up.

High-quality desired capacity exceeds the need for ECE. Conducting additional analyses to understand the context of the market is also important if the supply-demand analysis indicates a surplus of high-quality programs. Does a surplus of slots exist across programs of all quality levels? Children may be enrolling in lower-quality programs because structural barriers prevent them from accessing higher-quality programs. Barriers to selecting high-quality program may include price, distance from home

or work, a lack of information about programs, or no openings for infants and toddlers. Parents may also select a lower-rated program intentionally because it met other preferences including cultural/linguistic programming, services for children with special needs or simply because they have a previous relationship with the provider. It will require additional research on the unique context of the geographic area of interest to determine which of these factors best reflects the reality of families. . Efforts can be directed at structural barriers if these are limiting access to high-quality care for infants and toddlers.

Over time, some programs may exit the ECE market if slots are not filled. Programs may need to reconsider their marketing strategies, provide additional services (e.g., transportation, care during non-traditional hours, instruction in languages other than English) or offer discounts to increase enrollment.

High-quality desired capacity and the need for ECE are roughly equal. If it appears that capacity and need are aligned, it is still important to revisit assumptions about the analysis to ensure appropriate interpretation of the data. For example, additional analyses could be done to examine smaller geographic areas such as census tracts or to include all families with young children regardless of their employment status. Changing the scope of the analysis could reveal a shortage of slots available for the age group of interest.

Access example: Calculating the gap between availability and demand

Step 1: Determine the universe of available ECE programs

- 10,000 ECE programs in State ABC

Step 2: Select the geographic location of interest

- 1,000 ECE programs in County XYZ

Step 3: Sum the desired capacity for infants and toddlers for the ECE programs in the geographic area of interest

- Add the desired capacity across 1,000 ECE programs in County XYZ (for simplicity, assume desired capacity of 20 in each program)
- 20,000 ECE slots in County XYZ

Step 4: Identify households in the geographic area with employed parents and young children ages 6 weeks to 3 years

- 6,000 households in County XYZ with young children
 - 3,600 employed households in County XYZ (two-parent households with both parents working and one-parent households with the parent working)
 - 7,200 children ages 6 weeks to 3 years in employed households in County XYZ

Step 5: Demand for ECE among working families with young children in County XYZ

- 7,200 ECE slots needed

Step 6: Determine the number of high quality infant/toddler slots in County XYZ

- 6,000 high-quality slots available

Access example, cont: Calculating the gap between availability and demand

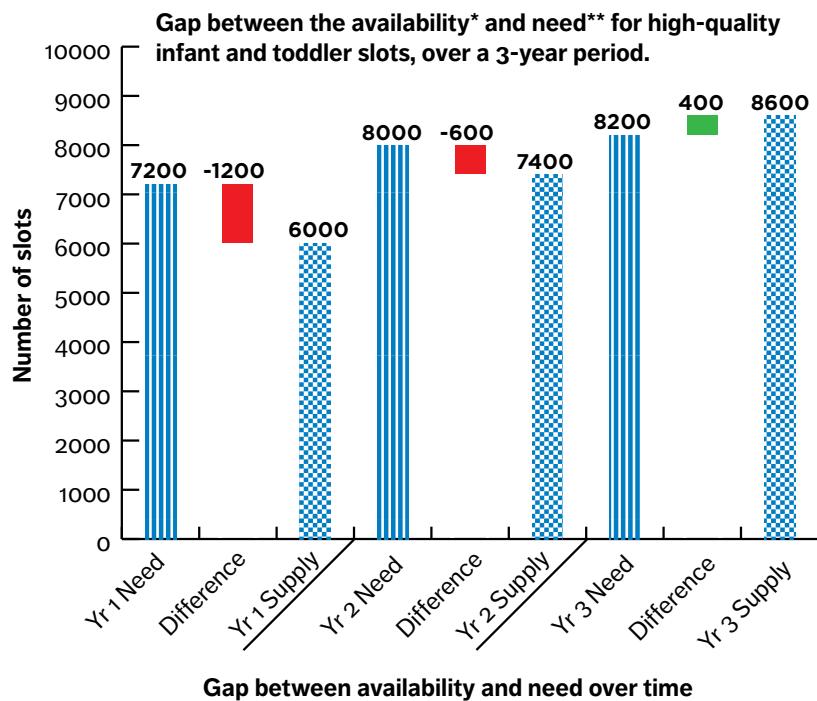
Step 7: Compare the number of high quality slots available with the number of ECE slots needed

- 6,000 high-quality slots available
- 7,200 ECE slots needed

Step 8: Subtract the demand for ECE from the number of high-quality ECE slots

- -1200 slots (# of high-quality slots – demand for ECE)

Step 9: Repeat the analysis over time to track improvements



*Assumes an increase in ECE programs each year that meet the high-quality standard due to encouraging or incentivizing participation in quality improvement programs.

**Assumes a population increase of infants and toddlers each year.

4. What information are parents using to find high-quality ECE programs providing care during non-standard hours (e.g. nights and weekends)? Priority group: Non-traditional hour ECE

This question addresses the indicator of access that is information about the QRIS is readily available. States and programs can answer this question using data available through a QRIS website, as long as the website includes a feature that allows users to search for ECE using customizable queries based on their needs. Website analytic software packages such as **Google Analytics** generate detailed statistics about a website's visitors and their behaviors. Website analytics provide a useful way for QRIS administrators to understand the characteristics of the website visitors who are accessing information about the programs in the QRIS. Website analytics cannot identify who specifically is visiting the site; in the case of QRIS consumer websites, many of the visitors will be parents with young children who are searching for ECE, but not all site users will fit this profile (even if they comprise most of the visitors). Acknowledging this limitation, website analytics data still provide a unique view into the types of information about ECE programs in the QRIS that parents may seeking.

Step 1: Identify the geographic areas with the most website users

Using the analytics program, select the state of interest. Most analytics programs will then provide a ranked list of the cities within the state with the most website users. On its own, this information has only limited value because it is likely highly correlated with the population in each city. If available, data about the population, or the population of young children can be used to calculate a site-use saturation rate for each city which serves as a metric of the proportion of people within each city that are utilizing the site.

Step 2: Analyze the most common search functions used

Many QRIS consumer websites allow users to search for ECE programs that have specific features. These features could include program type, age groups served, or hours of operation. The analytics program can provide data to identify which ECE program features are selected most frequently by site users in the search process. These analytics can be calculated for different geographic areas and can address questions such as: Do users tend to search for home-based programs more than center-based? How many users are searching for programs that offer care during non-traditional hours? Which age group categories are most often selected in the search process? While this information does not indicate the types of ECE programs parents ultimately select, but it does offer useful information about general ECE preferences.

Step 3: Track site trends over time

The website analytics used in Steps 1 and 2 can be studied on a weekly or monthly basis, to track trends in website use over time. For example, if a public awareness campaign is launched in cities with low site saturation, improvements in site use in that area can be tracked over time. Changes in the types of ECE programs site users search for can also be monitored. Searches based on quality can also be tracked. For example, do site users change their search patterns over time to emphasize a preference for the highest levels of quality in the QRIS? Regular review of website analytics can provide descriptive information about how the QRIS may be impacting consumers' preferences about ECE.

Understanding the Results and their Implications

Website analytics are a helpful addition to the tools available to states and organizations making decisions about ECE. A variety of website analytics can be studied to supplement the analyses described in this section. It will be useful to consult with an analyst who can offer guidance on how to mine website analytics for the wealth of information they offer. When website analytics are used, it is important to interpret the results with caution as noted here.

Saturation varies across cities. The results from calculations of website saturation by city provide some indication of the degree to which parents are seeking information about the QRIS and how searches vary between geographic areas. For example, documenting 9 percent website saturation (i.e., the number of site users from a city divided by the number of households with young children) in one city compared to 20 percent saturation in another city can prompt questions such as: Are traditional marketing efforts heavier in the city with higher saturation? Is there a greater word-of-mouth between parents about the QRIS in different cities? Knowing how saturation varies between cities can help with the development of additional questions to ask about how marketing efforts may be working in different parts of the state.

Users search for certain types of programs more than others. Website analytics data can provide information about the types of characteristics that users are searching for, which can serve as a proxy for parents' ECE preferences. Typical ECE characteristics available on a QRIS website might include program type (including Head Start and state pre-K programs), age groups served, and QRIS level of quality. Tracking search results for program type (for example) for a 3-month period could reveal that site users are searching for center-based ECE more frequently than home-based. This information

could be combined with the tracking of searches based on QRIS quality level, to identify patterns in the program type/quality level combinations that are most sought after by website users. The results of these analyses can be used to inform marketing and outreach about QRIS-participating programs. If site users are searching for home-based programs less often, even when high-quality home-based programs are available, efforts could be made to promote the availability of high-quality home-based programs and the features of quality that are rated in these programs.

5.What is the number of programs that offer child care services in a language other than English by quality level in the geographic area of interest? **Priority group: English language learners (ELLs)**

When choosing an ECE arrangement, families of English language learners, such as immigrant families whose home language is not English, consider the language used by ECE providers more often than their American-born, English-speaking counterparts.¹ States or organizations interested in improving access to ECE among English language learners may want to understand the number of programs that offer ECE in languages other than English and the number of these programs that are high quality.

Answering this question requires combining indicators from two dimensions of access: “meets the parents’ needs” (languages spoken in the home) and “supports the child’s development” (child participates in high-quality ECE program). One metric to measure language practices in ECE programs is the language spoken by practitioners working in the program. The information needed to calculate this metric may not always be found in one dataset, so multiple datasets need to be combined. Typically, data about practitioners’ language spoken can be found in a **child care resource and referral** database, **workforce registry**, and/or **Head Start Program Information Report (PIR)**. This information, combined with data about program quality that can be found in a **Quality Rating and Improvement System (QRIS)** database, provides a description of the capacity of programs to provide ECE in languages other than English.

Step 1: Determine the universe of the number of programs with staff who speak a language other than English in the geographic area of interest.

The first step in completing this analysis is to determine the universe of ECE programs with staff that speak a language other than English. This requires a variable that identifies languages spoken by at least one staff member in the program or by a family child care provider. Programs may be present in more than one database, so duplicate programs can be identified through the use of a unique identifier (e.g., license number, address, program name, and/or owner name). It is important to count each program only once when creating the universe of programs. Additionally, it is important to consider the level at which data are recorded in each database used. Information in the workforce registry is listed at the individual provider or teacher level, whereas information in the child care resource and referral and Head Start PIR databases is recorded at the program-level. For this example, information should be collected at the program level. To account for this difference, programs that have at least one staff member who speaks a language other than English can be included in the universe of programs.

Step 2: Calculate the number of programs with staff who speak a language other than English at each rating level

Second, link the universe of programs with staff who speak a language other than English with quality rating level from the QRIS database, using unique identifying information. Calculate the number of programs at each rating level. It is important to note that some programs that have staff who speak languages other than English may not participate in a QRIS, and thus do not have a rating level. Other information about ECE programs such as accreditation status can be used in lieu of QRIS ratings if the QRIS ratings are not available for certain programs.

¹Chaudry, A., Pedroza, J. M., Sandstrom, H., Danziger, A., Grosz, M., Scott, M., & Ting, S. (2011). Child care choices of low-income working families. Retrieved from The Urban Institute website: <http://www.urban.org/research/publication/how-contextual-constraints-affect-low-income-working-parents-child-care-choices>

The analysis described here should be completed regularly (i.e., monthly or yearly) to track improvements in efforts to expand access to high-quality ECE for English-language-learning children and families.

Understanding the results and their implications

An analysis of programs with staff speaking a language other than English allows state administrators or organization leaders to track the number of high-quality ECE programs for families that desire a provider who can speak their home language (with quality defined by specific levels in a QRIS or by another metric such as accreditation status).

States and organizations can use the results of this type of analysis in a couple of ways. The first is a point-in-time examination of the current number of high-quality programs with staff speaking languages other than English. This “snapshot” documents the number of programs at a given time, but does not provide information about change over time. Child care resource and referral agencies may benefit from having a point-in-time snapshot to help connect families to specific programs that meet their needs. Another strategy is to track the change over time in the number of programs with providers who speak a language other than English to understand whether state’s efforts are increasing the availability of high-quality programs for non-English-speaking families. Three outcomes may result from tracking this metric over time, each with different implications:

The number of high-quality programs with staff who speak a language other than English increases over time. An increase in the number of high-quality programs with staff who speak a language other than English may be a result of overall quality increases in the area of interest. Alternatively, incentives to hire staff that speak a language other than English may be working particularly well among high-quality programs. Or, new programs may have moved into the area that offered both high-quality care as well as services in a language other than English, which may be due to policy, demographic, or economic changes in the area.

The number of high-quality programs with staff who speak a language other than English decreases over time. A decrease in the number of high-quality programs may not necessarily suggest negative trends. For instance, the need may have decreased over time. It is important to track the number of families that need or desire care in a different language. A decrease also may be due to programs with non-English-speaking staff reducing their quality over time or high-quality programs with non-English-speaking providers closing, moving out, or losing non-English speaking staff.

The number of high-quality programs with providers who speak a language other than English stays the same over time. Depending on the number of families in the area seeking care offered in a language other than English, an outcome indicating no change over time may be interpreted positively or negatively. If the number of families that need this type of care are increasing, and the number of high-quality programs with non-English-speaking staff remain the same, then the efforts to improve access may need to be increased. However, if the number of programs stays the same because the needs of families in the area are being met, then this outcome can be interpreted positively.

States and organizations can examine this question more deeply by determining the gap between priority groups seeking care provided in languages other than English and the availability of these programs (see Questions 1-3 in this section of the guidebook). Priority groups include non-English-speaking children and families and immigrant families. Additionally, another level of analyses can be conducted by examining language subgroups to better understand the availability for specific language groups.

Access example: Understanding programs with non-English-speaking staff by quality level

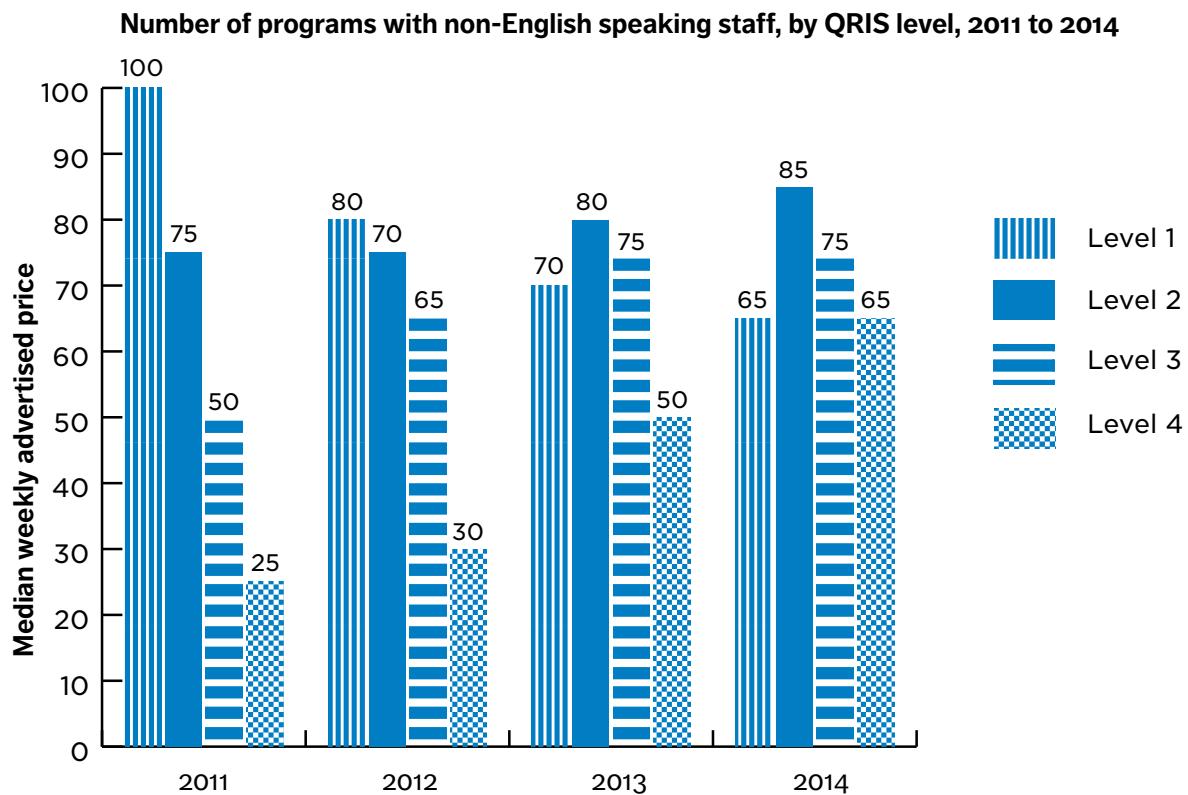
Step 1: Determine the universe of the number of programs with providers who speak a language other than English in county XYZ

- 250 programs with providers who speak a language other than English
 - 150 programs in the child care resource and referral database
 - 50 unduplicated programs in the workforce registry
 - 50 unduplicated programs in the Head Start PIR

Step 2: Calculate the number of programs with providers who speak a language other than English at each rating level at year one

- Year One: 250 programs with providers who speak a language other than English
 - 100 programs at Level 1
 - 75 programs at Level 2
 - 50 programs at Level 3
 - 25 programs at level 4

Step 3: Repeat the analysis each year to track increases in the total number of providers who speak a language other than English and change in their quality level



6. What is the advertised price of ECE program by QRIS quality level? **Priority group: High-poverty communities**

Documenting the advertised price of ECE programs by QRIS quality levels allow states and organizations to understand differences in programs' stated prices, particularly in high poverty communities. Completing the analysis for this question will not provide information about differences in programs' total cost to provide high-quality ECE because those costs often differ from the advertised price for a variety of reasons. Questions about costs of quality require different methods and analytic strategies that differ from methods used to analyze price.

Data about the advertised price of programs is available in many **child care resource and referral datasets**. These datasets typically report separate prices for children by age group (e.g., infants, toddlers, preschoolers, and school-age). Any analysis of price should be completed maintaining this separation since there are structural differences in price based on children's age. Data about program quality should come from a **Quality Rating and Improvement System (QRIS) dataset** if such a system is in place in the state.

Step 1: Convert all monthly and hourly advertised prices to weekly prices

The first step is to determine the advertised price, by age groups served. The metrics of price in this example are average and median prices, calculated for three age groups: infants, toddlers, and preschoolers. These data needs to be standardized across different units of reporting. The different units of ECE price are hour, day, week, or month. A unit should be selected that represents the most appropriate metric for the state or organization conducting the analysis and one that can be tracked over time.

Step 2: Calculate the median price for the age groups: infants, toddlers, preschoolers, school-age

Once prices have been standardized, calculate either the average or median price for each age group.

Step 3: Calculate the median price by age group and level of quality

Next, conduct the median price analysis for programs at different levels of the QRIS (the designation of quality indicator). These data are typically housed in a separate QRIS dataset that needs to be merged with the CCR&R dataset using a common identifying variable such as licensing ID. With a combined dataset, the same descriptive statistics can be run by age group for each level of the QRIS.

Understanding the results and their implications

The usefulness of calculating advertised price of ECE across a large geographic area like a state is somewhat limited, given that the price of ECE programs varies over much smaller areas, from neighborhood to neighborhood. As with most questions about ECE access, it may be most useful to conduct separate calculations for smaller geographic areas, such as county, city, or census tract to provide richer information about how different characteristics of a geographic area may be related to the price of quality. For example, counties with high levels of poverty could be compared to counties with low poverty levels to identify differences. The American Community Survey provides data that indicates poverty incidence by county. There are a number of variables in the report that could be used including the estimated percent of people under age 5 in poverty. Using this example, a couple of outcomes are possible, each with different implications:

Advertised prices do not differ by quality levels or lower-quality programs charge more. The expected result of completing this analysis is that advertised price is higher at higher quality levels. If this result is not found and advertised prices are fairly flat across the quality levels, it will be helpful to identify possible explanations. For example, it could be that the market cannot support higher prices. Or, competition in the market is high regardless of quality level, resulting in low variation of price across programs.

Advertised price differs between high-, mid-, and low-poverty communities. Determining how advertised prices vary between communities based on average household income can help states or organizations understand how prices are potentially constrained by the parents' ability to pay. Further analyses could examine other community characteristics such as urbanicity (i.e., rural, suburban, urban) to help identify features associated with ECE prices.

Access example: Understanding advertised price by quality level

Step 1: Convert all monthly and hourly advertised prices to weekly prices

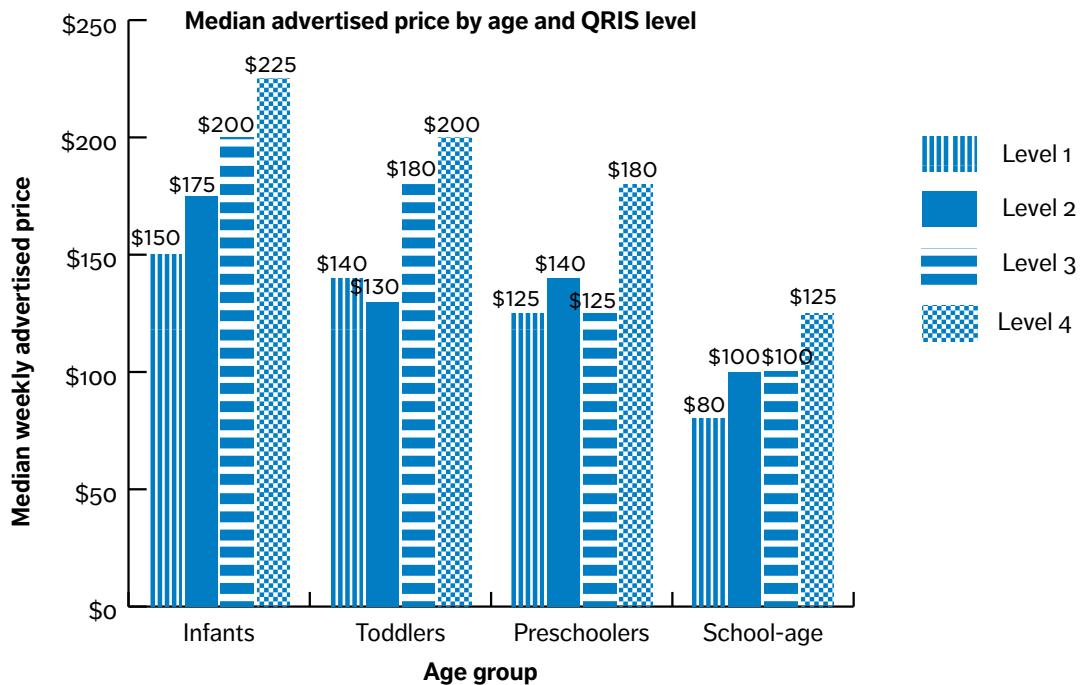
- $(\$600/\text{mo} * 12 \text{ months})/52 \text{ weeks} = \$138.46/\text{wk}$
- $(\$5/\text{hr} * 40 \text{ hours}) = \$200/\text{wk}$

Step 2: Calculate the median price for the age groups: infants, toddlers, preschoolers, school-age

- Infants: \$187.50
- Toddlers: \$162.50
- Preschoolers: \$142.50
- School-age: \$101.25

Step 3: Calculate the median price by age group and level of quality ("L")

- Infants: L1, \$150; L2, \$175; L3, \$200; L4, \$225;
- Toddlers: L1, \$140; L2, \$130; L3, \$180; L4, \$200;
- Preschoolers: L1, \$125; L2, \$140; L3, \$125; L4, \$180;
- School-age: L1, \$80; L2, \$100; L3, \$100; L4, \$125;



7. How many ECE programs entered and exited the market over the last year? *Priority group: Rural areas*

States are encouraged to build their supply of child care programs that are available to underserved or special populations with the Child Care Development Block Grant (CCDBG) reauthorization. In order to build supply, states must first understand the number of programs in the market. Because programs are often entering and exiting the market, states may want to track the movement of programs regularly. Information to answer this question can be found in **licensing** and/or **child care and resource and referral** databases.

Step 1: Select an appropriate time frame for assessing entries and exits

To answer this question, first select an appropriate time frame for measurement. It could be monthly, quarterly, or biennially, or another timeframe that makes sense given the state and regional context. It is important to select a timeframe and stick with that original plan so that comparable assessments can be made over time. More frequent analyses will provide more fine-grained results and are preferable for that reason, but if there is a lack of resources to complete this work on that timeframe, a longer one can be used. To complete the calculations to answer this questions, use a unique identifier (e.g., licensing number) to remove duplicate programs and to track entries and exits over time.

Step 2: Incorporate an indicator of geography into the number of available ECE programs

In order to account for the geographical location of ECE programs, states or organizations may choose to examine this metric by region, county, city, census tract, school district, or zip codes. The list of programs from each time point can be divided into two additional lists for each geographic region of interest (e.g., urban and rural). Some states have a variable that indicates whether the program is in a rural or urban setting; others can use a variety of metrics, such as county, zip code, Federal Information Processing Standard (FIPS) code, or street address to create an indicator for urbanicity.

Step 3: Calculate the number of programs that entered or exited the market by comparing the number of available ECE programs at two points in time. The supply of publicly available ECE programs can be calculated by comparing the unique identifiers over two time periods. Unique identifiers that are in the Time 1 dataset but not the Time 2 dataset can reasonably be assumed to have left the market. Those in the Time 2 dataset but not Time 1 are entries to the market. Total the number of exits and entries into the market for the change in the supply of publicly available ECE programs over the time period. Totaling the number of unique identifiers at the two time points will give you the total number of available programs in the geographic area.

Understanding the results and their implications

The interpretation of these results must be done in conjunction with an examination of policies in the area that might affect the supply of programs in the market. State administrators can adjust policies to support changes to the supply of ECE programs. If this analysis is completed on a monthly basis for several years, states can track trends in entries or exits of programs to help them identify some of the reasons that programs are entering or leaving the market. For example, is there a time of year (e.g., fall or winter) when more programs leave the market? If there is, that trend can be examined further to see if certain types of programs face barriers to sustainably operating the full year. Depending on the needs of the area, states may want to reduce or increase the supply of programs within a geographical area. There are three ways that states can interpret results from this analysis:

More programs entered than exited. Policy efforts in the area may have facilitated more programs to enter into the market. Perhaps more incentives were provided to programs to move into specific geographic areas. This outcome may also occur because the demand for programs in the area grew. As the demand grew, the number of programs may have increased to meet the demand. This indicates a growing market.

More programs exited than entered. This result may occur because the market did not allow programs to continue operating. There may have been a decrease in the demand, or the cost of providing care was greater than the programs could afford, even though demand did not change. In addition, there may have been policy shifts that contributed to a decrease in the number of programs in the market, such as higher property taxes in a geographic area.

The number of programs entering and exiting stayed the same. There are two ways to interpret this outcome. First, the market is stable, and therefore the number of programs that are exiting are being replaced by those entering. If the demand and policies have not changed, this exhibits a stable market. However, if the state instituted new policies to either increase or curb the number of programs in the market, then a net gain of zero would indicate that changes have not been effective.

One limitation to interpreting the results is that the state may not know why a program has entered or exited the market unless the state collects qualitative information regarding changes. States can survey programs that have entered or exited the market to determine what factors contributed to the change. Another limitation is that programs may be considered “in the market” when they are not operating at the time (e.g., the program is licensed and therefore included in the licensing database, but is not operating). Finally, this example did not consider the quality of programs because a program entering the market may not likely be involved in a quality rating improving system or accrediting body to receive an indication of quality. However, an analysis of the quality of programs exiting the program may be informative.

States can utilize this calculation to conduct more complex analyses, such as calculating the gap between supply and need within a geographical area (see Questions 1-3), comparing different geographical regions other than urbanicity, or looking at changes over time (using multiple but equally-spanned time points). Additionally, because an individual program may go in and out of the market, states can also monitor the number of entries and exits a single program has in order to learn more about how to support programs that frequently enter and exit the market.

8. What percent of ECE programs that are eligible to receive subsidy serve at least one subsidy-receiving child? Priority group: Children receiving CCDF subsidy

A state's **licensing dataset** is typically the first source for determining which programs are available to serve children who receive CCDF subsidy. This is not the case in all states though, especially those with a high percent of license-exempt programs that are eligible to receive subsidy. In this example, we will focus on formal care arrangements (e.g., licensed centers and homes) that are eligible to receive subsidy. Additionally, the state's **subsidy dataset** is needed to determine how many programs are serving at least one child that receives subsidy.

Step 1: Calculate the number of programs eligible to receive subsidy

In this step, you will simply find the number of licensed programs in your licensing dataset. You may want to answer this question for each type of program in the dataset (e.g., licensed center-based, licensed home-based) so those numbers should be recorded as well.

Step 2: Calculate the number of programs serving at least one subsidy-receiving child

The next step is to turn to the subsidy dataset to determine which of these programs are serving a child who receives subsidy. First, you need to filter out any license-exempt or family, friend, and neighbor providers in the dataset, since programs of those types are not included in this analysis. Next, you need to filter out any duplicates of programs, since many programs will be serving more than one subsidy-receiving child.

Step 3: Calculate the percent of programs serving at least one subsidy-receiving child

Divide the number of programs serving subsidy-eligible children by the total number of programs eligible to serve subsidy-eligible children. This will give you the percent of licensed programs serving at least one subsidy-receiving child. Repeat this calculation for each type of program in your licensing dataset.

Step 4: Repeat this calculation each month and calculate an average after at least three months

Every month the number of licensed programs and programs serving children who receive subsidy changes. This means that you will need to repeat the calculation described above for at least three months and preferably six months to get a sense of these fluctuations from month-to-month. Once you've done these calculations for three to six months, you should average the monthly percentages for an average percent.

Understanding the results and their implications

Answering this question will help you to determine whether subsidy-receiving children are clustered in certain programs or if they are more spread out among licensed programs. Having a sense of this will help you to set policy and programmatic goals for supporting subsidy-receiving children and the programs they are enrolled in.

Low percent of programs serving a subsidy-receiving child. If the analysis you find that a low percent of programs, say 1 to 33 percent of programs are serving subsidy-eligible children, that might be an indication that there are some programs doing most of the care of these children or that a lot of subsidized care is happening in informal settings. That is not necessarily a negative finding, but it suggests that these programs might be in need of additional supports to serve their population of children. Since a low household income is a prerequisite for subsidy receipt, these subsidy-receiving children might be more at-risk and, knowing that there are programs with many of these children, means the programs that serve them are good candidates for supports for children with high needs. It might also be an indication that some programs are choosing not to provide subsidized ECE, perhaps because they think that higher reimbursement rates are necessary to make it beneficial to them or due to perceived administrative burdens in serving children with subsidy.

Mid- to high percent of programs serving a subsidy-receiving child. If you find that the percent is in the mid (34 to 66 percent) to high (67 to 100 percent) range, you have a sense that subsidy-receiving children are much more spread out among licensed programs. One possible benefit of this is that it suggests that subsidy children are not concentrated in a few programs that might lack the resources to meet the potentially needs of many potentially at-risk children. These programs may be more stable and able to divert extra resources to potentially at-risk children, like those who receive subsidy. However, when children are more spread out among programs, it makes it difficult to target resources at programs with high concentrations of at-risk children.

9. What percent of homeless children are participating in Head Start? Priority group: Homeless children

The Child Care Development Block Grant (CCDBG) reauthorization urges states to improve access to high-quality ECE for underserved populations. A first step to improving access for underserved populations is to examine whether the state currently has slots available for underserved populations to access ECE. States can calculate the estimated vacancy or available slots in ECE programs. High-quality child care programs can dedicate slots to be filled by underserved populations. For populations of interest, states can track the percent of underserved populations that are in these high quality slots over time to compare alongside the estimated vacancy to determine what policy changes can be installed to improve access.

In this example, the estimated vacancy is calculated for Head Start programs because they offer high-quality ECE, especially for underserved populations such as homeless or foster children. Other programs can be examined, such as school-based preschool or pre-kindergarten programs if available in the state. The priority group for this examine are homeless children, but foster children or other low-income children can also be considered. The **Head Start Program Information Report (PIR)** records both the number of funded slots as well as the number of filled enrollment. In addition, it details enrollment information for different sub-groups.

Step 1: Estimate the number of available slots in Head Start programs

To estimate the number of available slots in Head Start programs, subtract the total enrollment from the number of funded slots.

Step 2: Estimate the number of homeless children participating in Head Start. Using the PIR, enrollment numbers by certain sub-populations are already recorded (e.g., homeless children). If states want to examine other sub-populations, they may consider surveying programs to determine the number of homeless children who are participating in Head Start.

Step 3: Calculate the percent of homeless children participating in Head Start and track over time. To determine the percent of homeless children participating in Head Start, divide the total enrollment for the population of interest (i.e., homeless children) by the total enrollment in Head Start.

The analysis described here should be completed on a regular (i.e., yearly, biennially) basis to track any improvements in state's efforts to expand access to high-quality ECE programs for underserved children and families.

Understanding the results and their implications

States may want to target policies that improve access to high-quality care for underserved populations, and this measurement is one way that states can monitor underserved children and families' access to high-quality care. There are a few outcomes with this calculation:

There are no estimated vacant slots. This may be an indication that the market is meeting the need since the number of slots available is filled with the number of children who want that care. However, unless wait lists and demand are factored into this measurement, it is hard to determine whether there is a high demand for these programs but not enough slots to fill the demand, which may also result in a lack of estimated vacant slots. Comparing the gap between the need in the area with the number of available slots (see Question 1-3) may help to elucidate whether the market is meeting the need or whether there are not enough available slots.

There are estimated vacant slots. In this scenario, one interpretation is that the number of funded slots is greater than the number of children who would like this type of care. However, most likely, these available slots may be due to families' inability to access the care despite their desire to have that type of care. For example, families may find the application process confusing, may not know the program is available to them, or may face structural barriers (e.g., transportation or language) that limit access to care. States should explore why there are unfilled slots and address those needs before removing those slots altogether.

To interpret the percent of homeless children in Head Start alongside the estimated vacancy, states may want to monitor whether there is an increase in the percentage of homeless children who are attending high-quality ECE. For this example, if states want to encourage homeless children to attend Head Start, they may want to see if the percent of homeless children attending Head Start is increasing. If there is a decrease in the percentage of homeless children attending Head Start, the state may want to determine whether they are receiving care elsewhere or whether they are unable to access Head Start in order to develop policies to improve access.



Section 4: ECE Access Datasets and Sources

Dataset types

The datasets described here include two types: those collected and maintained by a federal agency or body with national data that can be parsed for smaller geographic units (e.g., region, state, county, city), and those collected by a state agency or body with data specific to that state alone. State-level datasets used to measure ECE access vary in terms of the variables collected, data collection periodicity, and collecting agency. Due to this variance, the level of specificity about these data sources provided in this resource is lower than for federal data sources. Typical, rather than actual, features of state-level datasets are described in this resource whenever possible.

Federal data can be useful in providing the demographic and geographic variables that are essential in calculating the demand for ECE when that information is not collected at the state level, although it is important to note that not all federal datasets provide data at the state level even if every state is sampled. Demographic variables are not indicators of ECE access on their own. That is to say, for example, calculating the number of children from birth to age 5 in a county tells you nothing about families' use of ECE. But analysis of ECE access indicators without contextual variables, like the population of young children in a geographic area, provides an incomplete picture.

Not all states maintain each of the state-level datasets described in this resource; this is simply a list of typical datasets that many states do maintain. There is a great deal of variation between states in terms of what they collect (if they collect it at all) so the information presented in these tables does not refer to any one specific dataset.

Table fields

Each table lists indicators from the *Clarifying and Defining Access to Early Care and Education* resource that can be used in measuring ECE access and are available in the data source. These indicators are also formulated as possible or sample questions that could be answered using the data source. Table 1 provides a description of the fields in each data source profile.

Table 1. Descriptions of the fields included in the ECE access data source tables

Fields	Description
Dataset	The name of the specific dataset (for federal data sources) or a descriptive name of the type of dataset (for state data sources).
Data source*	The federal entity that collects and maintains the dataset.
Data source level	The level at which the data is collected and maintained, either by a federal, state, or county agency.
Years available*	The time period over which the data was or is collected.
Data collection Periodicity*	The frequency of data collection.
Geographic level*	The geographic units of aggregation at which the data can be parsed: national, regional, state, county, city, zip code, and census tract.
Description	A general description of type of data elements that are part of the dataset.
Usefulness in measuring ECE access	A description of how the dataset relates to ECE access and can be used to make measurements of ECE access.
ECE Access Indicators	A list of ECE access indicators that have corresponding data elements within the dataset. These data elements can be used to measure the indicators of access. A full list of ECE access indicators and dimensions is available in the brief, <i>Clarifying and Defining Access to Early Care and Education</i> , which provides more detailed information, including definitions, about the indicators.
Possible questions	Sample questions that could be answered fully or in part by using data elements from the dataset. These questions will typically require using multiple data elements, possibly from multiple datasets, to be answered.
Limitations	Limitations for using each state dataset to measure ECE access are listed in the state profiles. Federal datasets typically have similar limitations so a summary of those limitations precedes the federal dataset profiles.

*Unavailable for state datasets

Dataset profiles

ACF-800, ACF-801	
Data source	U.S. Department of Health and Human Services, Administration for Children and Families, Office of Child Care
Data source level	Federal
URL	<p>http://www.acf.hhs.gov/programs/occ/resource/acf-800-annual-aggregate-child-care-data-report</p> <p>http://www.acf.hhs.gov/occ/resource/acf-801-reporting-for-states-and-territories</p>
Years available	<ul style="list-style-type: none"> • 1998 to Present
Data collection periodicity	<ul style="list-style-type: none"> • Conducted monthly (801), aggregated yearly (800)
Geographic level	<ul style="list-style-type: none"> • National • State
Description	The ACF-800 and 801 includes data self-reported by all states and territories to include unduplicated counts and characteristics of family and children who receive subsidy through the Child Care Development Fund (CCDF). Data elements include parents' co-payments, family income, subsidy amounts paid to providers, total amount of ECE provided per month, and provider QRIS rating, among others.
Usefulness in measuring ECE access	Data from the ACF-800 and -801 are useful in understanding indicators of ECE access like the parents' contribution towards paying the cost of care (co-payment), the amount of subsidized contribution providers receive for each child, and the quality of that provider. This data offers a common set of measures to monitor states from both cross-sectional and longitudinal perspectives. Many states also collect and house these indicators in their own databases, but these datasets offer another, straightforward way to track the same indicators over many years or to make comparisons across states.
Limitations	<ul style="list-style-type: none"> • Data can be difficult to connect to other data on an individual or household level

Administrative data, pre-K through grade 12 schooling	
Data source level	State
Geographic level	<ul style="list-style-type: none"> • State • County • City
Description	Administrative data kept by the state agency responsible for public education system will include information about ECE programs operated by individual school districts. These may include information about the number of sites per district, number of children at each site, and any unique needs (e.g., physical or development disability, English language learner, homeless) of the children involved in the program.
Usefulness in measuring ECE access	School-based programs frequently serve young children who have high or specialized needs in a consistent and quality way. Tracking the number of children receiving these services is necessary for states that want to build the supply of these programs and increase the number of children served by them.
Limitations	<ul style="list-style-type: none"> • Data might be difficult to link with licensing and or QRIS data • It can be challenging to determine the number of programs versus physical sites within a district

Administrative data for the state licensing entity of ECE programs	
Data source level	State
Geographic level	<ul style="list-style-type: none"> • State • County • City
Description	States' child care licensing bodies maintain administrative datasets containing information about ECE programs' licensing status. Data are typically collected through self-report and visits to programs to assess licensing violations.
Usefulness in measuring ECE access	Licensing data typically includes indicators like: program type, age groups served, hours of operation, licensed capacity, and licensing violations. Licensing datasets are one of the primary datasets states rely on for information about ECE programs operations and are useful in determining the supply of licensed ECE programs and slots.
Limitations	<ul style="list-style-type: none"> • Data may be outdated or unreflective of program's current operations if the cycle for performing licensing visits is too long • Data are often reported at both the individual site level (e.g., for individual center- or home-based programs) and at the organization level (e.g., for corporations with multiple sites) making comparisons across the two types difficult • Does not always include information about ECE programs of certain types (e.g., license exempt) • Licensing standards are different in each state making cross-state comparisons difficult

American Community Survey (ACS)	
Data source	U.S. Census Bureau
Data source level	Federal
URL	https://www.census.gov/programs-surveys/acs/
Years available	<ul style="list-style-type: none"> • 2000 to present
Data collection periodicity	<ul style="list-style-type: none"> • Conducted yearly, released in 1-, 3-, and 5-year files
Geographic level	<ul style="list-style-type: none"> • National • State • County • City • Zip code • Census tract
Description	The American Community Survey is a statistical survey that provides data about a sample of the population (about 1 in 38 U.S. households) of the United States. This data provides information on race, income, migration, and language, which can be examined for geographic regions.
Usefulness in measuring ECE access	Data from the ACS are useful in determining the demographic characteristics of families within specific geographic areas. This information is particularly helpful in calculating the demand for ECE because it provides estimates of the number of young children living in households and parents' employment, which are necessary to understand the number of potential slots necessary to meet demand. The ACS also includes information about enrollment in preschool programs for 3- and 4-year-olds which could be used in ECE access analyses. The ACS is collected for a sample of households, so it does not provide as complete of a picture as the U.S. Census, but because it is collected yearly the data provide an up-to-date picture of demographic trends, although these data are not always released every year. A sample of actual responses in the ACS is available where the smallest geographic unit is the Public Use Microdata Area (PUMA). Aggregated ACS are available for other geographic areas.
Limitations	<ul style="list-style-type: none"> • Data can be difficult to connect to other data on an individual or household level (but can be linked to other sources of information at different levels of geographic aggregation)

Child care resource and referral data	
Data source level	State
Geographic level	<ul style="list-style-type: none"> • State • County • City
Description	Child care resource and referral data (e.g., NACCRAAware) are common datasets collected by Child Care Aware of America and their state and local affiliates through a survey of ECE programs. Not all states' child care resource and referral networks maintain datasets and the amount and type of data they collect varies between states.
Usefulness in measuring ECE access	Data in these sets include elements like: available child care slots in a given area, programs willing to accept subsidies, nontraditional operation hours, child care rates, and languages used by providers. The amount and method of data collection for resource and referral data vary widely between states: some states collect many data elements for many types of ECE programs, other states collect a few data elements for only certain types of programs. Resource and referral data can be an essential source of information about ECE access because it often includes information not available in any other source, like desired capacity by age groups. Some states include market rate data in with their resource and referral data.
Limitations	<ul style="list-style-type: none"> • Variables can be difficult to interpret, are missing data or need substantial recoding to use • Data are difficult to compare across states and sometimes within states across service areas • Data for certain types of programs, like school-based or Head Start, can be incomplete or not collected altogether • Data are self-reported by programs

Current Population Survey (CPS)	
Data source	U.S. Census Bureau, Bureau of Labor Statistics
Data source level	Federal
URL	http://www.census.gov/programs-surveys/cps.html
Years available	<ul style="list-style-type: none"> • 1945 to Present
Data collection periodicity	<ul style="list-style-type: none"> • Conducted monthly
Geographic level	<ul style="list-style-type: none"> • National • State • County • Public Use Microdata Area (PUMA)
Description	The CPS is a statistical survey that provides labor and economic statistics as well as demographics by geographic location. It includes data elements like employment status, work experience, and the labor status of special populations, like women who are heads of households and working women with children. The March supplement of the CPS also reports on the cost of child care expenditures.
Usefulness in measuring ECE access	Data from the CPS are useful in determining the employment trends of parents of young children living in geographic areas of interest. These indicators are helpful in estimating the number of households with young children where all of the adults are working and therefore the children will require ECE.
Limitations	CPS does not provide population estimates for individual age categories but does for aggregated categories (e.g., 5 years and under) so analysis using this dataset cannot be done for typical early childhood age categories (e.g., infant, toddler, preschooler, school-age)

State Child Care and Development Fund (CCDF) Program data	
Data source level	State
Geographic level	<ul style="list-style-type: none"> State County City
Description	<p>State Child Care and Development Fund (CCDF) program administrative data are used to track CCDF payments to ECE programs to cover all or a portion of the cost of ECE for subsidy-receiving children. Indicators of ECE access typically included in CCDF subsidy administrative data include amount of payment to ECE providers, parent co-payment amount, and family demographics. State CCDF program administrative data may provide additional information beyond the federal data requirements of the ACF 801 report. For instance, state administrative data contains the full caseload and may include additional characteristics for families and/or child care providers.</p>
Usefulness in measuring ECE access	<p>State CCDF subsidy administrative datasets are useful in determining the amount of subsidized care children are receiving in certain geographic regions, for certain types of programs, and specific age groups. Understanding how subsidy payments contribute to the cost of ECE is essential to understanding how high-needs children access high-quality ECE. These data can be used to portray a state-level picture of utilization of ECE by children who receive CCDF subsidy.</p>
Limitations	<p>State subsidy datasets typically contain data specific to CCDF subsidies, not necessarily other types of support (e.g., scholarships) provided to families through different funding methods</p>

Early Childhood Longitudinal Studies Program, Birth & Kindergarten Cohorts (ECLS-B, ECLS-K)	
Data source	Institute for Education Sciences, National Center for Education Statistics
Data source level	Federal
URL	https://nces.ed.gov/ecls/
Years available	<ul style="list-style-type: none"> • 1998 to present
Data collection periodicity	<ul style="list-style-type: none"> • Three longitudinal cohorts <ul style="list-style-type: none"> ○ 1998 to 1999: followed children in kindergarten through 8th grade ○ 2001: followed children birth through kindergarten entry ○ 2010-11: followed children kindergarten through 5th grade
Geographic level	<ul style="list-style-type: none"> • National • Regional
Description	The Early Childhood Longitudinal Studies (ECLS), Kindergarten Cohorts and Birth Cohort provide longitudinal data on children's health, early care and education, and school experiences. These studies include demographics and household information along with standardized measures of children's cognitive, socio-emotional, and physical development. With the application of study-specific survey weights, the ECLS datasets yield nationally representative (but not state-representative) portraits of young children and their families. A restricted-use ECLS data set is available to researchers who have received a restricted data license.
Usefulness in measuring ECE access	The ECLS is a rich longitudinal data source with information about many different aspects of young children's educational experiences. ECLS data is often best suited for traditional research, but it has some application to applied or policy research, as well. ECLS data can be linked to the National Center for Education Statistics' Common Core of Data to get information about children's elementary and middle schools. This information can be useful in understanding school readiness and academic achievement of children within a state.
Limitations	<ul style="list-style-type: none"> • High-level data analysis experience is necessary to analyze ECLS data • Data are difficult to connect to other data on an individual or household level • Data are not available at the state level to examine the impact of policies

Homeless Management Information Systems (HMIS)	
Data source level	State
Geographic level	<ul style="list-style-type: none"> County State
Description	HMIS administrative data includes information about the homeless population within the state, including data about young children who are homeless (i.e., lacking in permanent housing). These data provide an exact or estimate of the number of young children experiencing homelessness.
Usefulness in measuring ECE access	Improving ECE access for homeless children is a specific and stated goal in the CCDBG reauthorization of 2014. States looking to improve access for this specific population need a way to track the universe of young children who are homeless. HMIS data allows states to track the population of families with young children who are receiving services for homelessness or risk of homelessness.
Limitations	<ul style="list-style-type: none"> HMIS data knowledge might be lacking in early childhood fields Only covers families that interact with the homelessness support system

Market rate survey (stand-alone survey or part of a child care resource and referral dataset)	
Data source level	State
Geographic level	<ul style="list-style-type: none"> State County City
Description	Market rate surveys are administered to ECE programs to assess the prices charged to parents for full- and part-time care for children in different age groups, within specific geographic regions. This data is typically used by states to set reimbursement rates.
Usefulness in measuring ECE Access	Market rate survey data is useful for understanding the cost of ECE in geographic areas of the state. Since the cost of ECE varies by region, program type, schedule, and age group served, market rate data is an important data source for understanding these variations.
Limitations	<ul style="list-style-type: none"> Data sometimes come from a sample of programs Methodologies to sample and collect information varies dramatically across states Data are usually self-reported by programs Data collection is sometimes completed infrequently and not always on regular intervals so it could be out of date

National Household Education Survey (NHES)	
Data source	U.S. Department of Education
Data source level	Federal
URL	https://nces.ed.gov/nhes/
Years available	• 1991-2007, 2012
Data collection periodicity	Conducted every other year
Geographic level	<ul style="list-style-type: none"> • National • Regional (e.g. North, East, South, Midwest, West)
Description	The NHES provides descriptive data related to education for children in early childhood up through adult education. It allows users to track educational trends over time for educational topics like: early childhood, before and after school care, parent involvement, library use, school safety and school readiness. However, these early childhood and school readiness questions were not asked in each round of data collection.
Usefulness in measuring ECE access	The NHES can be useful in determining how the quality of the ECE a child has received is connected to their school readiness and later academic achievement. These data are useful in describing educational trends and examining associations between those trends and children's outcomes. Data from the NHES can provide a national and regional picture of children's development but it cannot be connected to state-level data sources because no unique identifying information exists to link it to other datasets.
Limitations	<ul style="list-style-type: none"> • High-level data analysis experience is necessary to analyze NHES data • Data are difficult to connect to other data on an individual or household level • Data are not available at the state level to examine the impact of policies

National Survey of Early Care and Education (NSECE)	
Data source	U.S. Department of Health and Human Services, Administration for Children and Families, Office of Planning, Research and Evaluation
Data source level	Federal
URL	http://www.icpsr.umich.edu/icpsrweb/ICPSR/studies/35519
Years available	<ul style="list-style-type: none"> • 2012
Data collection periodicity	<ul style="list-style-type: none"> • Conducted once
Geographic level	<ul style="list-style-type: none"> • National • Regional • State
Description	<p>The NSECE is a statistical survey that includes datasets for households with young children, center- and home-based providers, and the ECE workforce. Data were collected from a nationally-representative sample of households with young children in all 50 states and the District of Columbia. These four datasets include data elements like:</p> <ul style="list-style-type: none"> • Household: types of ECE used, hours of ECE the child receives, incomes; receipt of ECE subsidy, and demographics. • Center- and home-based providers: age groups served, enrollment, schedule, rates, languages spoken by staff, and revenue sources. • ECE workforce: education, training, work hours, activities with children, attitudes towards education, and parent interactions.
Usefulness in measuring ECE access	The NSECE datasets included data elements for most of the indicators of ECE access. The sampling strategy for the NSECE is complex such that some statistical proficiency is needed to be able to complete analyses. In some cases, data from the NSECE can be linked to data collected by the states, like licensing or QRIS data, to complete complex assessments of parents' experiences of access to ECE and availability of ECE in specific geographic regions within states.
Limitations	<ul style="list-style-type: none"> • High-level data analysis experience is necessary to perform certain types of analysis on NSECE data • Data are difficult to connect to other datasets on an individual or household level

Program Information Report (PIR)	
Data source	U.S. Department of Health and Human Services, Administration for Children and Families, Office of Head Start
Data source level	Federal
URL	http://eclkc.ohs.acf.hhs.gov/hslc/data/pir
Years available	<ul style="list-style-type: none"> • Late 1970's-Present
Data collection periodicity	<ul style="list-style-type: none"> • Conducted yearly
Geographic level	<ul style="list-style-type: none"> • National • State • County • City
Description	The PIR provides data and information about Head Start programs and the families they serve. It includes information like: enrollment, teacher qualifications, staff salaries, access to health care, poverty status, transportation, and demographics (e.g., race, ethnicity, language).
Usefulness in measuring ECE access	The PIR is a useful source of information about Head Start programs. Data about Head Start programs is sometimes not included in state data sources like licensing or child care resource and referral data so PIR data can supplement these other sources. PIR data is aggregated at the local, state, and federal levels and the extent to which it can be connected to other data sources at the program level will vary based on the data source to be linked to.
Limitations	<ul style="list-style-type: none"> • Data are only available for Head Start programs, not all ECE programs • Data are difficult to connect to other datasets on an individual or household level

Quality Rating and Improvement System (QRIS) data	
Data source level	State
Geographic level	<ul style="list-style-type: none"> State County City
Description	Quality Rating and Improvement System (QRIS) administrative data is collected during the process of rating ECE programs for their quality. The types of data included in QRIS datasets vary widely between the 38 states with a QRIS, but states are increasingly maintaining QRIS data at the standard (i.e., primary information used to determine a QRIS rating) and indicator levels (i.e., supporting data used to calculate scores for standards) of quality. QRIS datasets typically include other information about ECE programs and their staff.
Usefulness in measuring ECE access	The overall QRIS rating of quality is useful in measuring ECE access because it provides data about program quality at the standard or indicator level. It can also be used to look at specific domains of quality like teacher preparation and teacher-child interactions, depending on the availability of these data by state. An additional benefit to QRIS datasets is that data are often linked to other datasets, like workforce registries, allowing for easier analyses across the different datasets.
Limitations	<ul style="list-style-type: none"> Data at the standard or indicator level can be difficult to interpret and analyze for ECE access How quality is measures differs across QRIS, making cross-state comparisons difficult The type and quality of data collected varies from state to state

State Preschool Yearbooks	
Data source	National Institute for Early Education Research
Data source level	Federal
URL	http://nieer.org/yearbook
Years available	<ul style="list-style-type: none"> • 2003-2014
Data collection periodicity	<ul style="list-style-type: none"> • Yearly
Geographic level	<ul style="list-style-type: none"> • State
Description	<p>The State Preschool Yearbooks are annual reports of trends in state-funded pre-k programs. It includes variables about state's pre-k access (e.g., enrollment, percent of districts offering pre-k, income requirements, hours of operation, schedule, special education and Head Start enrollment), quality standards (e.g., early learning standards, teacher degree, teacher training, class size, screening and referral services), and resources (e.g., state pre-k spending, spending per child). Data from the Yearbooks can be combined to form a 12-year panel of data on state pre-kindergarten enrollment, funding, and quality.</p>
Usefulness in measuring ECE access	<p>The State Preschool Yearbooks datasets provide a useful to track pre-k enrollment, quality, and funding over time, at the state level. This information can be useful in tracking the impact of policy changes on pre-k enrollment, quality and funding. Data from the yearbooks is available at the state level only, so trends at the region, county, or city level cannot be tracked. The Yearbooks do not provide an assessment of demographic trends, so they cannot be used alone to make statements about how changes in enrollment and funding are keeping pace with demographic trends. However, data from the Yearbooks can be paired with another dataset (e.g., American Community Survey) to make these comparisons possible.</p>
Limitations	<ul style="list-style-type: none"> • Data cannot be parsed to geographic areas smaller than the state • Data are difficult to connect to other datasets on an individual or household level

Survey of early care and education programs	
Data source level	State
Geographic level	<ul style="list-style-type: none"> • State • County • City
Description	A survey of ECE programs is typically conducted by the state or other local affiliates (e.g., child care and resource and referral agencies) to assess aspects of their operations and services not captured in any other dataset. An ECE program survey might include indicators of ECE access like parents' satisfaction with their children's ECE, services offered to meet the unique needs of children, transportation, and coordination with other programs. A survey of ECE programs might be conducted either by an agency within a state or by a contracted research organization.
Usefulness in measuring ECE access	A survey can be a key way of gathering detailed information about ECE programs that is available through no other source. An ECE survey allows states to assess activities that programs are undertaking to support high-needs children like offering special services to homeless, disabled, or children in the child welfare system. It also provides an opportunity to assess the true cost of providing high-quality care and the amount of fundraising programs do to cover that cost.
Limitations	<ul style="list-style-type: none"> • Costly to conduct • Often a representative sample of ECE programs rather than a census of all programs

Survey of household with young children	
Data source level	State
Geographic level	<ul style="list-style-type: none"> State County City
Description	Household surveys of parents with young children provide information on how the child care market can improve to better address the family's needs, such as parent's perceptions of program quality, experience with subsidy receipt and continuity, and how they chose their care provider. Household surveys often include families with who are not receiving ECE as a way to assess barriers to access. A household survey might be conducted either by an agency within a state or by a contracted research organization.
Usefulness in measuring ECE access	A survey of households with young children is an important way of gathering information about parents' preferences for ECE and challenges they face in accessing high-quality ECE. Data from a household survey can be used to determine how much parents pay for ECE, the type of programs they prefer, and the number of high-quality programs available to them to choose from.
Limitations	<ul style="list-style-type: none"> Access to data elements not available through any other source (e.g., parents preferences) Uses a sample of parents, not necessarily representative Costly to conduct

Survey of Income and Program Participation (SIPP)	
Data source	U.S. Census Bureau
Data source level	Federal
URL	http://www.census.gov/sipp/
Years available	<ul style="list-style-type: none"> 1977-Present
Data collection periodicity	<ul style="list-style-type: none"> Conducted on an on-going basis with multiple, overlapping cohorts lasting 2.5 to 4 years
Geographic level	<ul style="list-style-type: none"> National
Description	SIPP includes information about family demographics and families' child care arrangements. A product is available that links SIPP and Social Security Administration person-level data as part of the SIPP Synthetic Beta dataset.
Usefulness in measuring ECE access	The data can be used to examine how factors such as family structure and employment relate to child care arrangements.
Limitations	<ul style="list-style-type: none"> Data cannot be parsed to geographic areas smaller than the nation Data are difficult to connect to other data on an individual or household level

U.S. Census	
Data source	U.S. Census Bureau
Data source level	Federal
URL	https://www.census.gov/data.html
Years available	<ul style="list-style-type: none"> • 1790-Present
Data collection periodicity	<ul style="list-style-type: none"> • Conducted every 10 years
Geographic level	<ul style="list-style-type: none"> • National • State • County • City • Zip code • Census tract • Block group
Description	The decennial U.S. Census is a count of all of the people living in residential structures. It includes data elements such as: race, ethnicity, age, and household structure, by geographic location.
Usefulness in measuring ECE access	The U.S. Census can be used to determine the actual count of young children living in a geographic area which can contribute to calculations of the demand for ECE. Since Census data is collected every ten years it can quickly become out-of-date. Other data sources, like a statistical survey such as the American Community Survey, can be used in lieu of Census data when it no longer provides an accurate picture of population counts.
Limitations	<ul style="list-style-type: none"> • Infrequent data collection periodicity • Limited number of variables

Website analytics about ECE programs that is available to the public (e.g., Google Analytics)

Data source level	State
Geographic level	<ul style="list-style-type: none"> State County City
Description	Web analytics allow for analysis of the use of websites with information about early care and education, such as licensing and QRIS, and can be tracked to understand search patterns by type of care, geographic location, or other parental preferences. Website analysis could be conducted by the entity that administers the QRIS or licensing program or by a contracted external researcher.
Usefulness in measuring ECE access	Analytics from a state QRIS or licensing website can be a rich source of data to assess the extent to which information about ECE programs is reaching parents. It can provide counts of users who've used the website, to what extent, and their geographic location. This information can be used to identify if parents have appropriate access to information about ECE programs to help them make decisions about their children's care.
Limitations	<ul style="list-style-type: none"> Data are not identifiable and difficult to connect to other data The assumptions are greater than with other data sources because characteristics of individual users are unknown

ECE Workforce registry

Data source level	State
Geographic level	<ul style="list-style-type: none"> State County City
Description	A workforce registry typically includes data about ECE professionals' education, training, and professional experience. Registry data can be helpful in determining the number of ECE professionals with qualifications to work with special populations of children (e.g., homeless, non-English speaking, developmental or physically disabled).
Usefulness in measuring ECE access	Workforce registries offer comprehensive data about practitioners' training, education, and years of experience that can be used to assess how ECE programs are providing access to high-quality ECE that meets children and families' needs.
Limitations	<ul style="list-style-type: none"> Not collected in all states In states where registry data is collected, it is often not collected for all practitioners Transforming the wealth of data available into useful summary statistics can be complicated and time-consuming

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Appendix A. List of the preliminary ECE access indicators compiled by the ECE Access Expert Panel

- Availability/capacity/enrollment
- Cost/affordability/financial assistance
- Dosage/amount of care/scheduling options
- Saturation by program type (pre-k, Head Start, center, family/home, family friend and neighbor)
- Public good/"open" to everyone/information about care is available to all parents
- Location/distance to home and work/transportation
- Parent choice/preference/acceptability/convenience
- Supportive of child development/meets the unique needs of the children served
- Language/cultural competency/special needs
- Continuity of care/stability (program and child)
- "Quality" (As defined by the state/locality; Highly-rated vs. high-quality)
- Financial assistance: continuity, adequate payment rates, copayment policies
- Service coordination
- Information and support available to parents (in accessible language and format)
- Geographic Area: school district, block, census tract, city, county, state